Does Windows 8 Help the Government Spy on Us? 11

Blunders Lead to Ballmer's Demise 8

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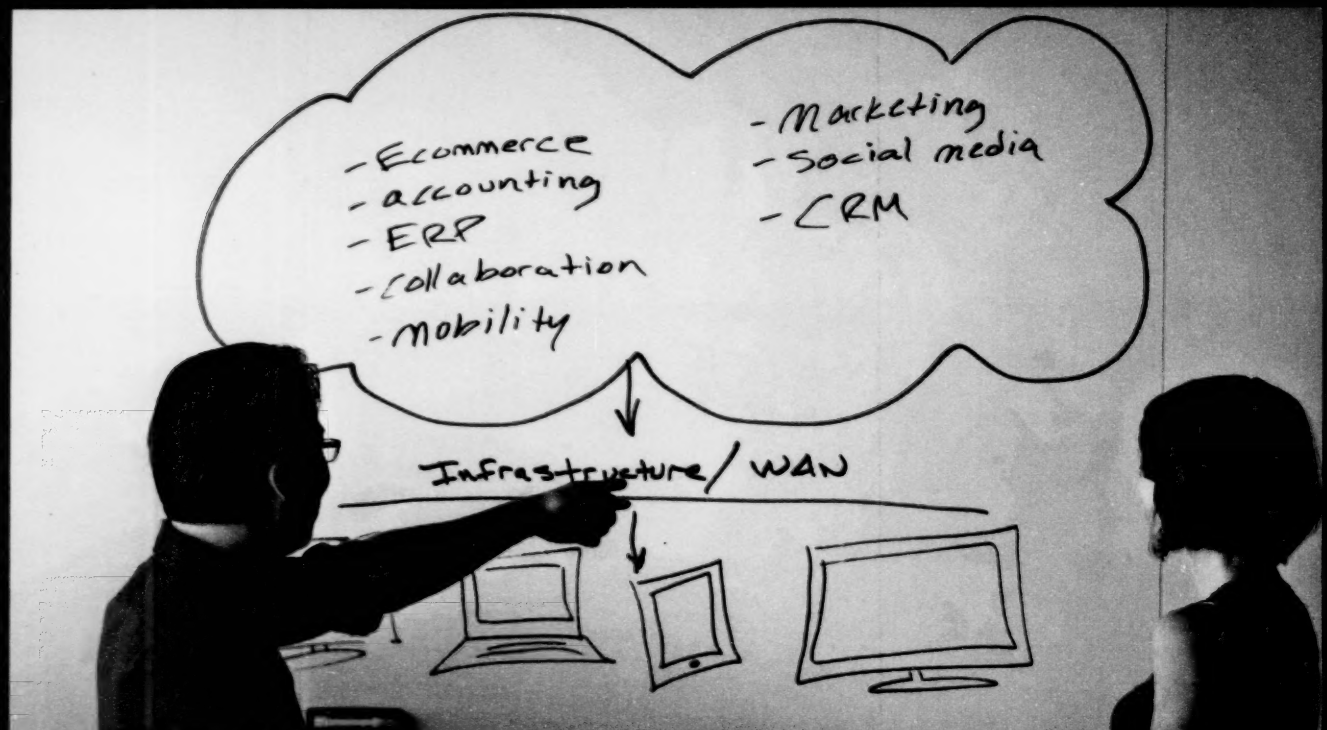
See page C4



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Great Ideas

HeadsUp

A race car developed by the Center for Automotive Research at Stanford (CARS) that's designed to drive itself at 150 mph while avoiding accidents, thanks to an onboard computer. The technology used in this prototype could someday be in everyday family cars.

SAAD FARUQUE

EMERGING TECHNOLOGY

Self-Driving Cars Don't Yield to Naysayers

AS DEVELOPMENT of self-driving car technology moves ahead, there's a growing faction of people in the blogosphere who say they won't let a computer usurp their driving independence.

In one online discussion, comments ranged from "They'll take the steering wheel out of my cold, dead hands" to "I'm not trusting a robot to drive a car for me [for] a long time."

In a 2012 survey of British drivers commissioned by Bosch, a Germany-based supplier of automotive components, most of the respondents said they wouldn't buy a self-driving car. Only 29% said they would consider buying a driverless car, and just 21% said they would feel safe as a passenger in such a car.

The results differed somewhat by gender. About 36% of male respondents said they would consider buying a self-driving car, but only 20% of the women responded that way.

Bosch, which has invested heavily in driver assistance technology, also reported that 34% of the respondents said they believe driverless cars would reduce accidents.

Automakers such as GM and Volvo, and even tech companies such as Google, are developing technology that could one day make it possible for cars and trucks to navigate roadways on their own.

Proponents of the technology say it will allow commuters and long-haul truckers to make better use of their time on long, boring trips. More importantly, backers say, autonomous car technology will reduce accidents and allow people who are physically unable to drive to get behind a wheel.

– *Lucas Mearian*

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OPEN SOURCE

Torvalds Marks Linux's Birthday With Nod to Past

On Aug. 26, 1991, Linus Torvalds announced in a newsgroup post that he was developing a free operating system and asked people to send in requests for features. Twenty-two years later, he echoed the words, and the spirit, of his original message in his Aug. 25 announcement of the latest Linux kernel release candidate.

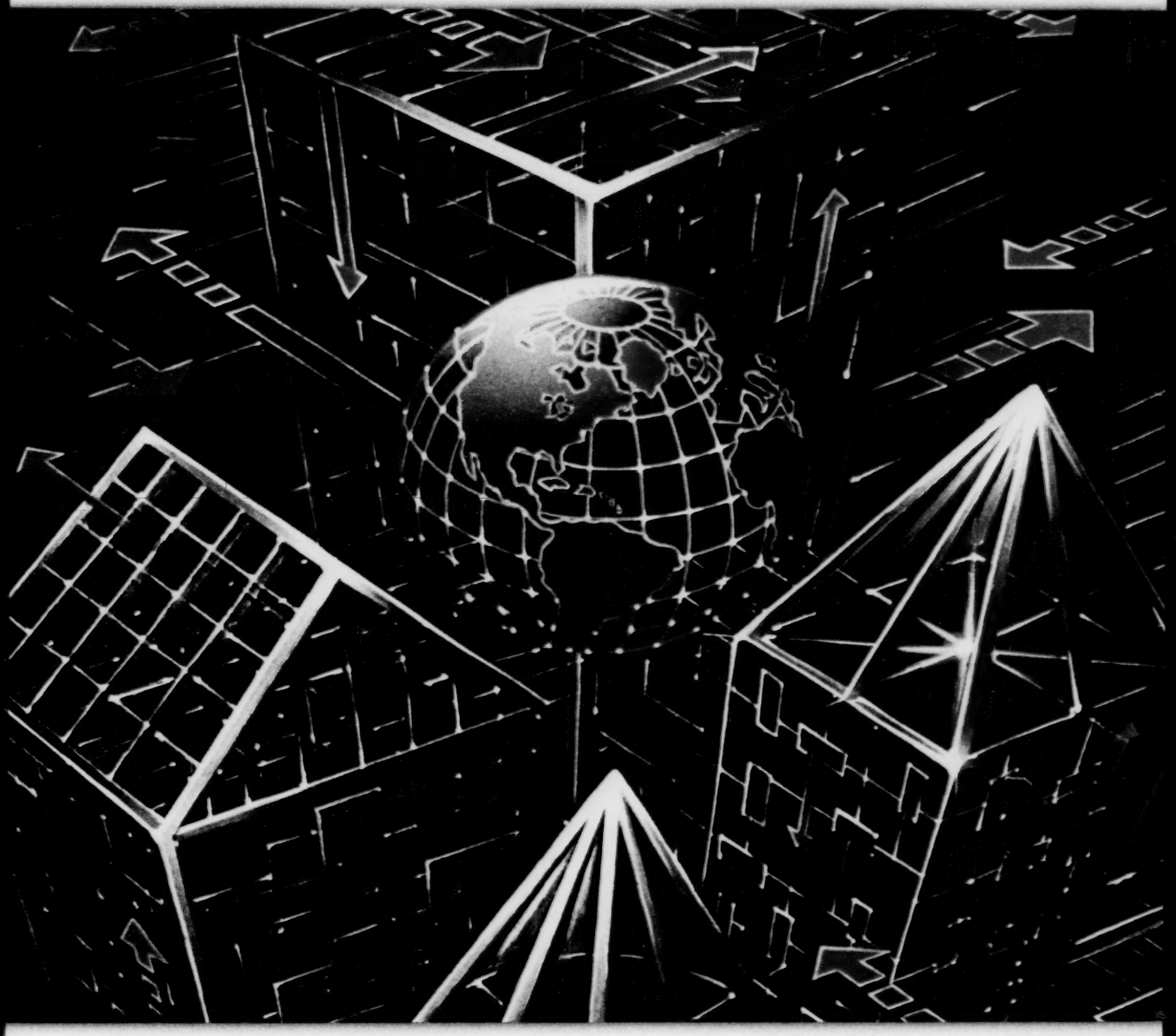
"Hello everybody out there using minix – I'm doing a (free) operating system (just a hobby, won't be big and professional like gnu) for 386(486) AT clones," Torvalds wrote 22 years ago last month.

On the eve of Linux's anniversary this year, Torvalds announced the Linux 3.11-rc7 kernel release with a message on Google+ that seemed to convey that he still favors an open, collaborative approach to development: "Hello everybody out there using Linux – I'm doing a (free) operating system (just a hobby, even if it's big and professional) for 486+ AT clones and just about anything else out there under the sun. This has been brewing since April 1991, and is still not ready. I'd like any feedback on things people like/dislike in Linux 3.11-rc7."

Version 3.11 of the Linux kernel is code-named "Linux for Workgroups" – a reference to Windows 3.11 for Workgroups, released by Microsoft a little over 20 years ago.

– LOEK ESSERS, IDG NEWS SERVICE

How InterSystems invented a database system for complex data types.



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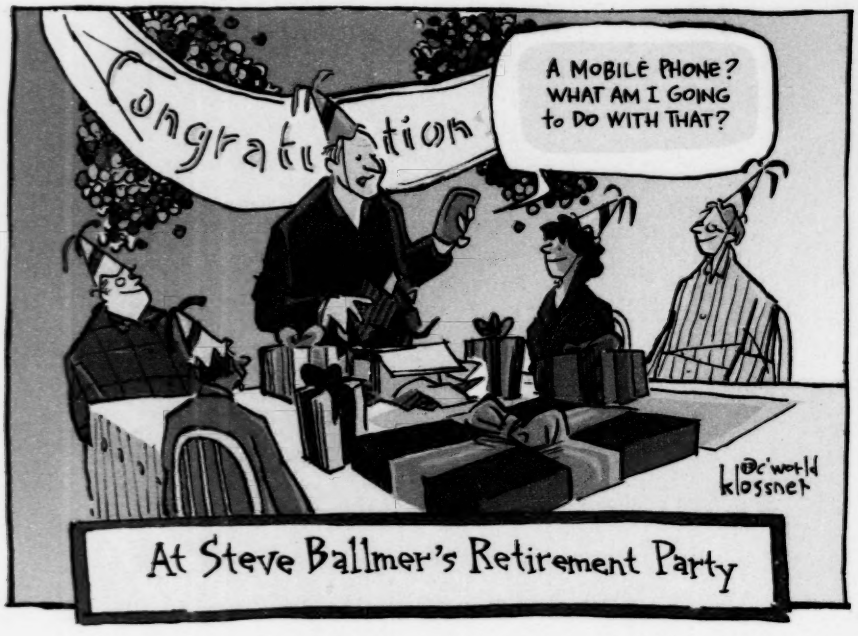
BETWEEN THE LINES
By John Klossner



IT INDUSTRY

Microsoft Bets Its Mobile Future on Nokia

MICROSOFT'S MOVE to acquire Nokia's devices and services business is a gamble that the company had to take to boost its flagging mobile business. For Nokia, it's an admission that it lacks the resources to compete with Samsung and Apple, say analysts.

The deal calls for Microsoft to pay $7.2 billion to buy Nokia's devices and services operations and to license the phone maker's patents for 10 years. It's expected to get regulatory approval in various countries by early 2014.

Nokia CEO Stephen Elop, who was president of Microsoft's business software group before moving into the top spot at the Finnish phone maker in 2010, will return to Microsoft and lead an expanded devices team, Microsoft CEO Steve Ballmer said in an email to employees.

Once the deal closes, Nokia will focus on its network infrastructure and services business, its HERE mapping and location services, and technology development and licensing.

"Microsoft had to make this purchase to improve its poor market share," said Darren Hayes, chairman of the computer information systems program at Pace University. "Their failure to impress consumers with Windows 8 means that a swift, dramatic shift in strategy and management is essential."

Gartner analyst Carolina Milanesi agreed, saying "time is running out for Microsoft" in the mobile market. She noted that while the deal will allow for better hardware-software integration and will likely lead to Microsoft devoting more research and marketing resources to mobile, "it also potentially gives Microsoft a bigger chance to get it wrong."

The deal is one of a string of developments in the increasingly volatile mobile market. Verizon Communications last week agreed to pay Vodafone $130 billion to acquire the 45% of Verizon Wireless that it doesn't own, and BlackBerry has formed a committee to explore new strategies, which may include putting itself up for sale.

– Mikael Ricknäs of the IDG News Service and Matt Hamblen

Micro Burst

Smartphone shipments are projected to reach

1 billion

in 2013, up 40% from last year.

OPERATING SYSTEMS

Dell Sticks With Windows 8 for Business Tablets

Demand for Windows 8 may be sluggish, but Dell still believes it's the best operating system for business tablets and plans to roll out more Windows 8-based products later this year, according to a senior executive at the computer maker.

"Our Windows tablets are more secure and easier to manage than Android-based products and iOS-based products [because Windows is] on our tablets," said Jeff Clarke, vice chairman and president of global operations at Dell. "And we are not going to change that."

Windows-based devices accounted for just 4.5% of tablet sales in this year's second quarter, according to research firm IDC. In comparison, Android-based devices had 62.6% of the tablet market and Apple's iPad had 32.5%.

The slow adoption of Windows 8 tablets is partly due to their high prices, and to the operating system's lack of mobile apps, analysts say. Windows 8 has also received mixed reviews, with some people citing its lack of a Start button in the desktop mode as a major problem.

But Dell expects demand for Windows 8 devices to pick up with the availability of Windows 8.1, which Microsoft will release in October.

– MICHAEL KAN, IDG NEWS SERVICE

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Obama, Romney Nerds Resume Battle

Data scientists from the 2012 presidential campaigns open rival firms to offer big data analytics services to politicians. By Patrick Thibodeau

THE SELF-DESCRIBED "NERDS" of President Barack Obama's 2012 presidential campaign don't seem to have lost their touch when it comes to big data analytics: They recently helped Newark Mayor Cory Booker score a landslide victory in the New Jersey Democratic primary race for a vacant U.S. Senate seat.

But these days, the Obama data scientists are working as consultants through their own recently formed firm, BlueLabs.

For the Booker campaign, BlueLabs built a voter turnout model to predict the likelihood of each Democrat in New Jersey going to the polls.

"Our model was spot on," said BlueLabs co-founder Chris Wegrzyn, a former senior member of the data analytics unit of Obama 2012 campaign team.

For their part, Republican data scientists acknowledge that their Democratic counterparts have a track record of success. "That 2012 campaign, without a doubt, had data and analytics more fully integrated into their structure," said Alex Lundry, the chief data scientist for Mitt Romney's 2012 presidential campaign.

But when it comes to data analytics, the Republicans are no longer ceding anything to the opposing party.

At about the same time BlueLabs was formed, Lundry co-founded a big-data consultancy called Deep Root Analytics. That was part of what he called "a flurry of activity on the right to make sure that we not only catch them, but surpass them."

On the day Democrats were counting New Jersey primary votes, Deep Root disclosed that it had signed a deal to use television viewing data that FourthWall Media compiles from millions of cable set-top boxes.

That data, which is anonymized, records what people watch. Deep Root plans to combine that data with insights about voters, and then place ads on TV shows most likely to reach certain people, such as swing voters.

Political campaigns have been using data to develop a sophisticated understanding of voters for years. But the practice has grown more sophisticated now that computing power is available at a relatively low cost via the cloud and researchers have ready access to large quantities of data from a slew of sources.

"You are collecting everything you can, and essentially comparing it every way you can," said James Hendler, a professor in the computer and cognitive science departments at Rensselaer Polytechnic Institute, and head of its Institute for Data Exploration and Applications.

"When you do a poll and you talk to 1,000 people who represent 100,000 people, you get a margin of error plus or minus 3%," Hendler said. That's helpful, he added, but not nearly as helpful as having 70,000 of those 100,000 people. At that level, he said, "you get much more precise and start identifying subcommunities that you can't do in a poll."

The use of big data in politics came of age in 2012, Lundry said. That year's presidential race "was definitely the first cycle in which the term *data scientist* was part of the org chart in a campaign," he said.

Wegrzyn agreed. "Usually the nerds in the back room don't warrant a great deal of attention, especially in politics," he said. "But the world is changing." ◆

> **Usually the nerds in the back room don't warrant a great deal of attention,** especially in politics. But the world is changing.

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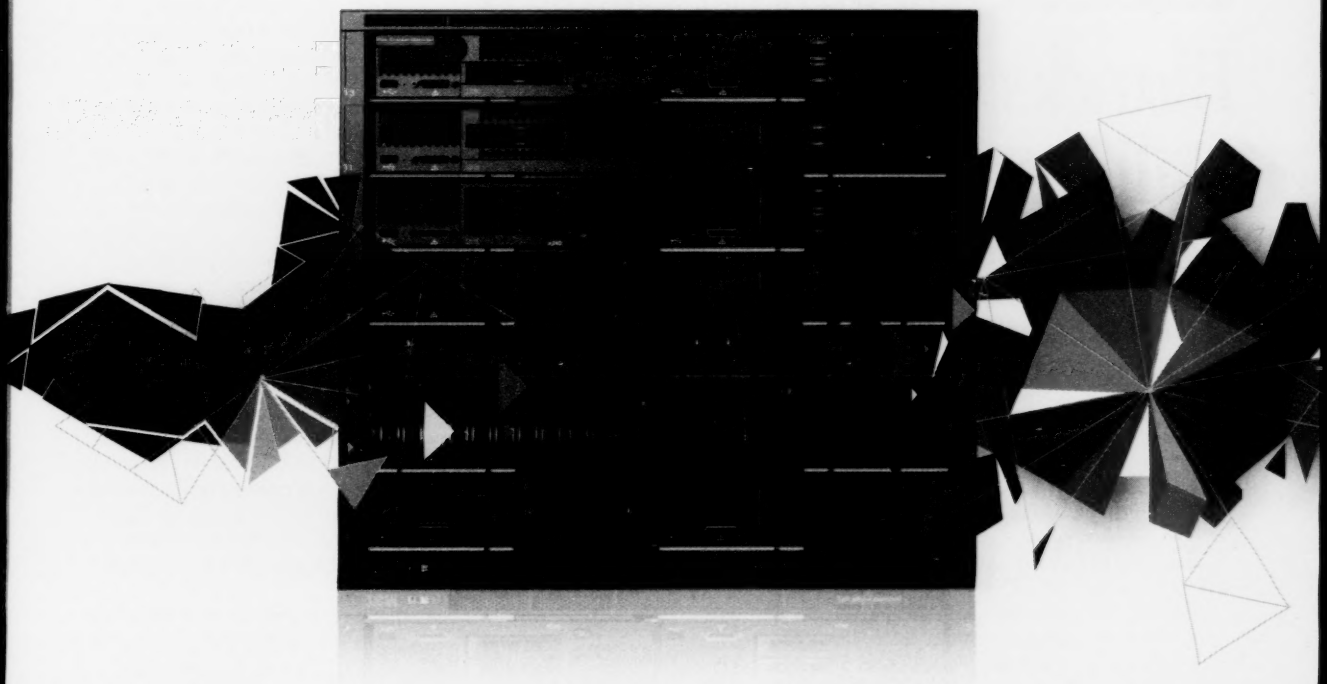

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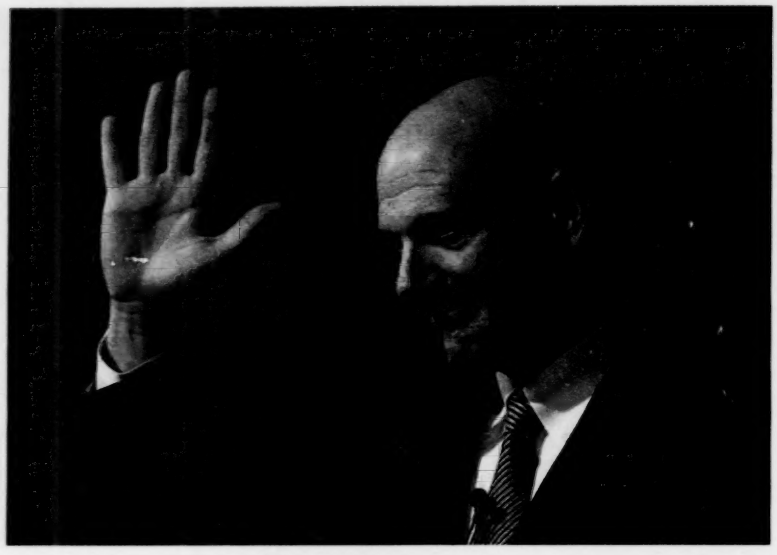


Blunders Lead to Ballmer's Demise

Analysts say mobile miseries, Windows 8 woes and the $900 million Surface RT fiasco forced the Microsoft board to act.

By Juan Carlos Perez and Gregg Keizer

THE HEAP OF BLUNDERS that piled up at Microsoft under Steve Ballmer's leadership may have hit a tipping point this year, leading to last month's earthshaking announcement that Bill Gates' former right-hand man and heir, as well as Microsoft's fiercest cheerleader, will step down as CEO within a year.

In recent years, Ballmer has been the target of criticism over a variety of issues. Among other things, detractors cited Microsoft's stock performance, the company's inability to challenge Google's dominance in search advertising, the perception that Microsoft reacted late to cloud computing and the company's weak position in the tablet and smartphone markets.

"There have been a whole series of market shifts that Microsoft has either missed entirely or misjudged," said Al Gillen, an IDC analyst.

"[Ballmer] was definitely pushed out by the board," said Patrick Moorhead, an analyst at Moor Insights and Strategy.

The biggest clue, said Moorhead, is the 12-month timetable Microsoft will use to find a CEO successor. "Typically, a board will be working behind the scenes for a replacement, but they've given themselves 12 months," said Moorhead.

"I think this went down very quickly," likely sparked by Microsoft's July decision to take a $900 million charge against earnings to account for a drop in the value of its remaining Surface RT inventory, he added.

The announcement immediately prompted speculation on a successor — in fact, a U.K. bookmaker has started taking bets on Ballmer's replacement.

Nokia CEO Stephen Elop, a former Microsoft executive, was the early choice of bettors, and he became the overwhelming favorite last week after Microsoft agreed to buy his company's mobile devices and services business for $7.2 billion (see related story, page 4). The deal calls for Elop to return to Microsoft to lead an expanded mobile devices team.

"Getting Elop back on board is a clear statement that Microsoft needs additional 'new thinkers,'" said Jack Gold, an analyst at J.Gold Associates. "This puts Elop high on the list of potential successors."

Rebecca Wettemann, an analyst at Nucleus Research, said Ballmer should have left several years ago because of his inability to see market fluctuations and to quickly act on opportunities. "This gives Microsoft a chance to start a new chapter and hire a CEO who has vision to lead the market, and not follow it," she said.

Microsoft is at a crossroads, something Ballmer himself acknowledged during interviews after announcing his retirement plans.

Revenue from the flagship Windows software is declining as PC sales slump badly. Though Microsoft remains very profitable, revenue from its best-producing groups remains tied to Windows. More important, many say that the company missed the boat on mobile and the consumerization of IT, and may not be able to catch Google, Apple and a blizzard of upstarts that are adding customers at astounding rates.

That's why the announcement of Ballmer's retirement, as big as it was, pales in comparison to the task that Microsoft will face after he's gone.

"Steve's leaving is a major event because he's been such a part of the Microsoft story for so long," said Gartner analyst David Cearley. "But the real watershed will be the person who follows him." ◆

Matt Hamblen *contributed to this story.*

> This gives Microsoft a chance to start a new chapter and hire **a CEO who has vision** to lead the market, and not follow it.

LEE JAE WON / REUTERS

THE Grill

Cynthia Nustad

This CIO builds executive trust by combining honesty with accountability

Family: Lives with her partner, two kids (ages 6 and 8) and two cats.

What's on your iPod?
"Most music I listen to tends to be from Pandora or music services because I like the variety."

What's your next career step?
"I'm very business-facing. I would love to see more CIOs, including myself, on public boards."

Do you have any hobbies?
"Gardening, kid and family time, and pretty much all things UCLA."

What's on your reading list?
"My book list tends to be on innovation and inventions."

Hometown: Ventura, Calif.

EVERY YEAR *the MIT Sloan CIO Symposium names four finalists to its CIO Leadership Award. This year's list includes Cynthia Nustad, senior vice president and CIO at Health Management Systems, which provides government-funded, commercial and private entities with cost-containment services for their healthcare payments. Like all good leaders, Nustad credits her team for the recognition. "I have a true sense of team, and I love when accolades go out to my group," she says. But Nustad also brings to the job her talent, insights and strategies — gained from 17 years of IT experience. Here, she shares some of her ideas on what works in IT.*

You started in your position in 2011. What was your strategy for getting up to speed?
In a high-growth business, when the company is growing more than 20%, my priority first and foremost was to ensure my business partners and I were aligned with where the company was going so I could bend my technology team toward that. Because

> **I make sure that I take the veil of secrecy off IT** and that [investments are] communicated at a level that anyone can understand what we're doing.

when you're as high-growth as we are, you get in, you hang on, and you want to make sure that your most precious resources are tied to the most precious clients and activities.

How did you make sure you were aligned? I had frequent meetings. I was outwardly facing with both my internal and external clients, and I had members of the technology team out with the business as we were creating new products or installing new clients.

How do you ensure that meetings produce results? One of the biggest things that my team is focused on now is honesty and accountability. My team will share where things aren't quite right, and they're making sure we're set up with them in those conversations. Then people can decide what's the best solution moving forward.

What has been your biggest challenge during your first two years? Building out the talent on the team. To overcome that, I work to ensure that we have depth on the recruiting side, in the personnel onboarding and training side, and knowing what to look for in the next hire. We do a lot of reflection on the types of candidates who are successful in our organization and therefore the types of candidates we want to go source.

What's been your biggest technology initiative? We've had two huge ones so far. One of them was our data center consolidation and modernization, so we have a platform that's highly flexible and scalable for our high growth, and our next-generation big data analytics. Since we are a company whose entire foundation of products and services is built on data, we engineered our future state with some very key technologies. Both have been done in the last two years, both were millions of dollars in investments.

The challenges? Certainly keeping your initiatives alive while keeping the company's lights on and doors open and operational. But these two strategic initiatives were very well communicated to our executive management, we had a lot of buy-in on the process and expectations, and therefore the successes that came out of it. We had a very engaged management team, so they knew what our statuses were all along and what to expect from us.

What's your biggest initiative moving forward? One is project innovation. We are in an emerging field, and the more we lead the field in our data analytics, the better we'll serve our clients at large and our company. Second is keeping up with our growth, so making sure we have a scalable human infrastructure as well as technology and process infrastructure.

How do you get value from your core IT services? One thing that's a key priority for me is that the executive team, including some members of our board, has a very educated understanding as to what we're doing. I make sure that I take the veil of secrecy off IT and that [investments are] communicated at a level that anyone can understand what we're doing.

There are key things we do to make sure of that. We use our annual IT vision maps. It's a visual image of the journey we're taking as an IT team that year and what goals and objectives we put forth, and some key milestones the business can recognize as we achieve them. [We also] communicate our IT investments in a portfolio manner. Just like you would be managing your 401(k), you might fine-tune that portfolio. We explain our IT budgets in that manner and how you might want to move investments around.

What's the value in doing that? It's a chance for them to help select. One of the key values here is I don't hide any [items] in the IT budget, they're all transparent and exposed. As a CIO, you going to have risk putting them out there but you have tremendous reward in what gets funded.

What's the reward? Their vote, their courage for funding these specific initiatives, their buy-in and their involvement. And when executives have a voice in clear goals, there's a higher chance for success.

How do you make yourself a trusted partner? We earn it. We do what we say we're going to do and if there are risks, we expose and communicate them and we stand up for any mistakes we make. It kind of goes back to the two key things that are important to me: honesty and accountability.

— *Interview by* Computerworld *contributing writer* **Mary K. Pratt** *(marykpratt@verizon.net)*

S.J. VAUGHAN-NICHOLS

Does Windows 8 Help Government Spying?

THE MICROSOFT FAN CLUB IS UP IN ARMS. Those reports about Windows 8 allowing the government to spy on us? Nonsense, they fuss. It's simply not true that Windows 8 combines with Trusted Platform Module (TPM) to create a built-in back door for surveillance by the National Security Agency (NSA).

> The problem with 'trusted computing' has always been knowing how trustworthy it is.

No, no, they whine, the German newspaper *Die Zeit* had it all wrong when it claimed that the combination of TPM 2.0 and Windows 8.x gives Microsoft complete control over which programs can and can't run, plus access to Windows BitLocker encryption, and the ability to remotely administer devices beyond a user's control.

And, oh my, no, the NSA or some other government agency could never, ever get into your computer or tablet via this technology pairing! Some Microsoft defenders even claim that the explanation from Germany's Federal Office for Information Security (BSI) about what's going on with Windows 8 and TPM 2.0 makes it clear that there's no real danger from using the pair in combination.

Really? They're not reading the same memo I'm reading.

I quote: "From the perspective of the BSI, the use of Windows 8 in combination with a TPM 2.0 is accompanied by a *loss of control over the operating system and the hardware*. [Emphasis and translation are mine.] This results *in new risks for users*, especially for the federal government and critical infrastructure. In particular … error conditions can result that prevent further operation of the system. This can cause errors that can brick the operating system and hardware. Such a situation would not be acceptable for the federal government nor for other users. In addition, the newly established mechanisms can also be *used for sabotage by third parties*. These risks need to be addressed."

Like Secure Boot, this is another step in Microsoft turning PCs into locked-down devices. While we can't know if Microsoft is sharing access with the NSA or other government agencies, the potential is certainly there for third parties to gain access to your PC and even your encrypted records if you use BitLocker.

Sure, TPM has always sounded like a good idea. The problem with "trusted computing" has always been knowing exactly how trustworthy it is.

Once upon a time, PCs were open devices. You could run whatever you wanted on them. It seems clear to me that Microsoft wants to turn PCs into closed devices. First, there was Secure Boot with Windows 8. Then, with Windows 8.1, your built-in local search integrated with Bing and its advertisers (but see Microsoft's denial below). And now we have built-in security holes.

I don't trust Microsoft with that much power. Frankly, I have a lot of trouble trusting any company that much. Call me old-fashioned, but I like knowing that I, and not someone else, has ultimate control over my PC. Give me open computers, not dedicated devices. ◆

• • •

Editor's note: Microsoft has requested the following clarification to Steven J. Vaughan-Nichols' Aug. 12 column, "Bing-Bang-Bungling Local Search": "Bing Ads are integrated only in the web search portion of Windows 8.1 Smart Search — the ads are never shown in local device search results or searches."

Steven J. Vaughan-Nichols has been writing about technology and the business of technology since CP/M-80 was cutting-edge and 300bps was a fast Internet connection – and we liked it! He can be reached at sjvn@vna1.com.

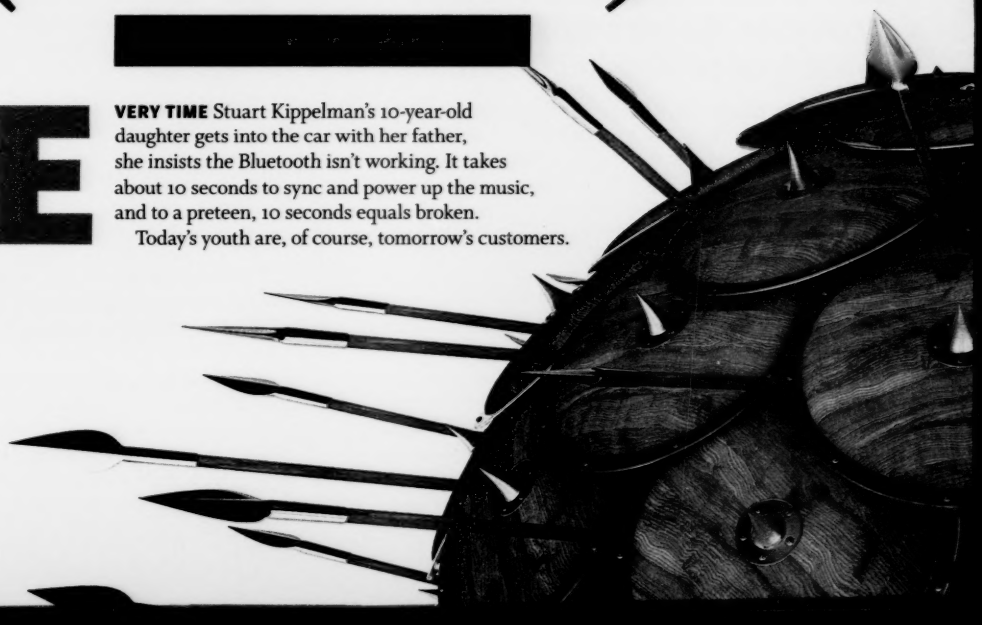
Your IT survival guide for the new business normal:
the world of volatility, uncertainty, complexity and ambiguity

Your IT survival guide for the new business normal:

MANAGING CHAOS (*as usual*)

EVERY TIME Stuart Kippelman's 10-year-old daughter gets into the car with her father, she insists the Bluetooth isn't working. It takes about 10 seconds to sync and power up the music, and to a preteen, 10 seconds equals broken.

Today's youth are, of course, tomorrow's customers.



In VUCA, you're making things up as you go along. We tell people not to wait for everything to be 100% perfect and don't make the simple complex. Go with your gut and your best professional instinct.

LINDA CLEMENT-HOLMES, SENIOR VICE PRESIDENT, PROCTER & GAMBLE

"They demand immediacy, which is driving what IT has to deal with," says Kippelman, who is CIO at Covanta Energy and a *Computerworld* blogger.

But the need for speed is just the tip of the iceberg. Across all industries, IT teams are up against unprecedented volatility, uncertainty, complexity and ambiguity, also known as VUCA. A term that originated in the military, VUCA aptly sums up what CIOs face every day in today's turbulent business environment.

"VUCA includes currency devaluation, natural disasters happening all over the place and, from an IT standpoint, a big proliferation in data and cyberattacks," says Linda Clement-Holmes, senior vice president of Global Business Services at Procter & Gamble. "We have to deal with all of these things."

The list goes on: Thanks to cheap and ultra-efficient technology, new competitors can come out of the woodwork; global privacy rules and industry regulations are continually changing; and users' expectations — driven largely by their experiences with consumer technology — are through the roof.

"In the old business model, big ate small," says John Sullivan, a professor of management at San Francisco State University and former chief talent officer at Agilent Technologies. But in the VUCA world, "fast eats slow," he says. "Facebook didn't exist six years ago, and now, a billion-dollar company is run by someone who didn't graduate college and wears a hoodie. Before, you always knew your competitor, but now, dominant players might come from any industry and come overnight."

Here's an IT survival guide for the age of VUCA.

1 Learn Flexibility

The only way to manage the chaos is to become super highly adaptable, IT leaders say. Throw out your five-year strategy; VUCA defies long-term planning. Also jettison multimillion-dollar project plans and technology investments. Strive instead to become "asset-light," relying on IT services you can quickly expand or unplug as business conditions blink. Perhaps most important (and most counterintuitive): You should simultaneously pursue competing goals.

In a VUCA world, "what used to work for five years might work for six months. Because you can't plan for a particular thing, you have to plan for a range of things," says Sullivan. "Moving in different directions at the same time must become the norm."

VUCA, CIOs say, impacts everything — from the way you structure an IT organization and hire talent to how you cut costs, boost productivity, and launch new revenue-generating products and services. John Halamka, CIO at Beth Israel Deaconess Medical Center and Harvard Medical School, also says the rise of VUCA presents a golden opportunity for innovation.

2 Find Opportunity in Chaos

In healthcare, between the Affordable Care Act, privacy legislation and radical changes to the International Statistical Classifications of Diseases (ICD), an industry bible used to categorize virtually every diagnosis and medical procedure, "our business requirements have been utterly redefined," says Halamka, who is also a *Computerworld* columnist.

"Obamacare, for example, funds medical centers not on what operations they perform but on quality and wellness outcomes," he explains. "Hospitals know how to take care of people when they're sick but not how to take care of them when they're well. There's VUCA for you."

VUCA leads to opportunity because "no one in the industry has any idea how to do this right," Halamka argues.

"What an incredible opportunity for innovators and risk-takers," he says. Also a plus is the fact that "there's a whole new generation of tools and technologies, which now means we are able to do some of these business processes successfully," he adds.

Two years ago, it was unclear precisely how all of the various proposed rules and regulations would ultimately play out. So Halamka and his team made what he calls "an educated guess," and began aggregating all of the data across the sprawling Beth Israel Deacon-

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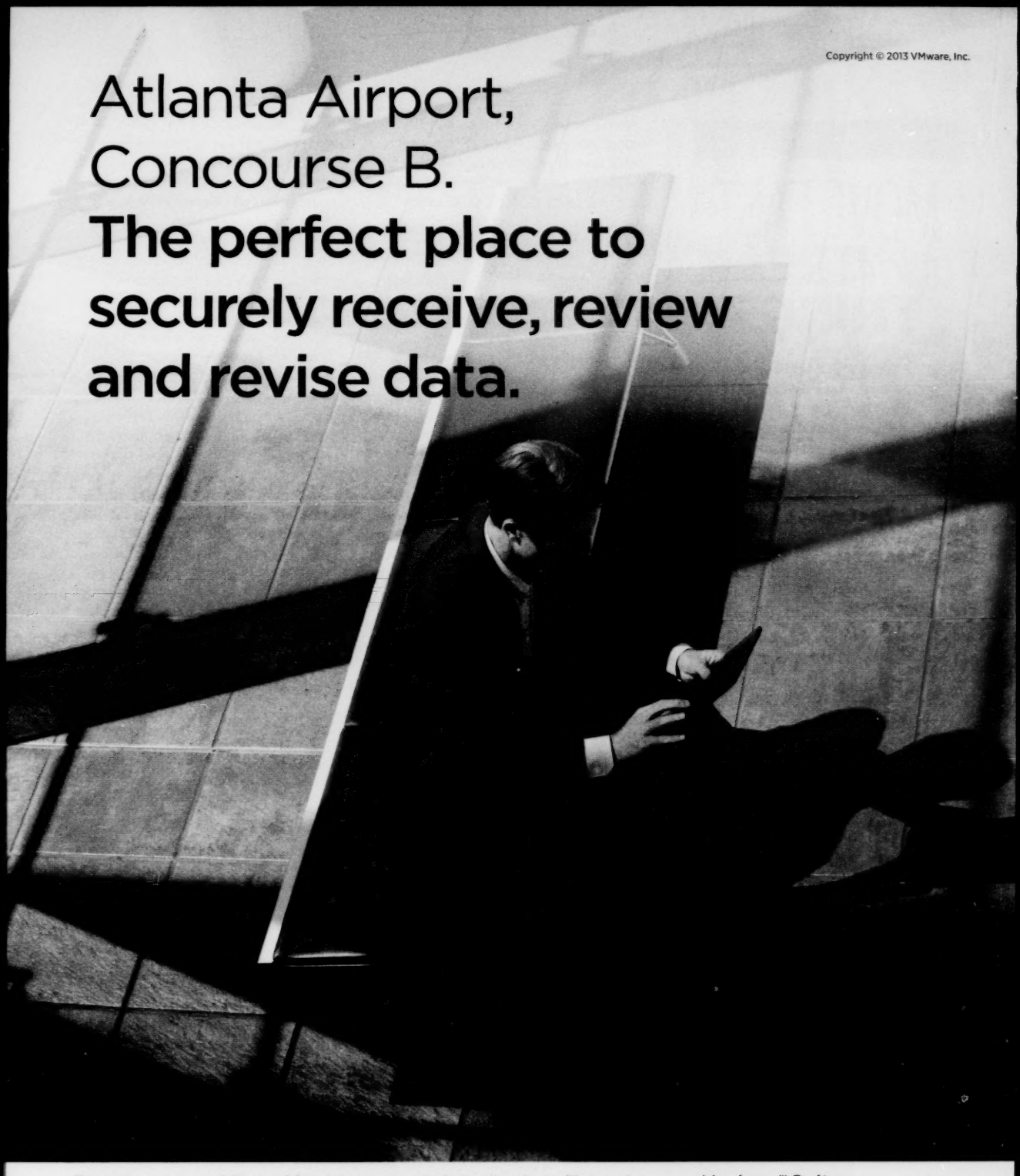

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MOVE FAST *and* BREAK THINGS

IF YODLE STUCK with its original business model eight years ago, it would have failed. But today, it's a $130 million marketing technology and services company that thrives on blowing things up to get them right.

"That was actually one of the driving forces behind setting up our systems and processes," says CTO John Merryman. "It's the case for many tech startups: You don't know what comes next." In other words, VUCA is just business as usual.

Groupon, for example, started as an idea for fundraising and turned into a business built on group coupons, Merryman points out. Facebook is still tweaking its revenue model. "Trying lots of things is how you end up with better answers," he says. "Doing the same things better won't solve the problem."

In a nutshell, Yodle is the digital world's answer to the old Yellow Pages. When the world went online, big companies could afford to build and run their own websites. Small local businesses couldn't. Enter Yodle, which has built a technology platform with which it can quickly provision websites for local businesses.

But first, Yodle set out to be an online business directory, launching a service called Yodle Local.

"Our idea was about having a direct consumer relationship and developing leads. We tried it and there were some promising signs, but then Google changed their algorithms in such a way that they tended to decrease the ranking of directories. It wasn't working nearly as well," Merryman says.

So the company quickly switched business gears. It also decentralized IT as a way to stay agile.

"As you scale a nimble organization, and every startup is nimble, there are certain inflection points at which you have to change," he says. "One thing we've done that I think is critical to agility is decentralize the process of building products and servicing business units."

To this end, IT at Yodle doesn't have "one big priority list."

"That leads to a whole lot of discussion about the relative priority of things that are incredibly hard to trade off, like achieving audit compliance versus building a new product feature that might make the company $100 million," Merryman says. "People spend their time arguing rather than getting work done."

Instead, IT at Yodle is divided into feature teams, each of which is responsible for a particular business constituency.

"The relative spending on business areas doesn't change much, but what does change is how [money] is spent. In the services marketing area, for example, there are all sorts of ideas that come up all the time, and because they have their own priority list, they're free to quickly shuffle priorities around," Merryman explains. "They're innately familiar with the business challenges in that area; the engineers know the customers because they're on calls. They get it."

In contrast, "with a centralized backlog, if your feature makes it to the top and you've won, you're incredibly demotivated to stop that development," he says. "It makes people less willing to change priorities. A features team approach reinforces that you should always use your resources for the ultimate business value."

The bottom line, Merryman says, is "we've been through a whole slew of iterations to get it right, to come up with the right price, the right product and to sell it in the right way. Setting ourselves up to quickly try things and learn what works and what doesn't is a big part of our success."

– JULIA KING

ess community into a central care management repository. Today, that repository is the foundation of the medical center's electronic health records system and information exchange.

Now, Beth Israel Deaconess is figuring out how to help physicians grapple with the more than 170,000 billing codes in the revised ICD, which takes effect in October 2014.

"Doctors will have to document entirely differently, so we're asking questions like 'Is a doctor able to remember 170,000 codes?' and 'How can we blow up the way it's done now and use things like natural language processing so the computers read what a doctor writes and suggest a code?'

"We've had to completely rethink in a natural way the approach to clinical documentation with a timeline of one year to have it go live," Halamka says.

To be successful in the escalating VUCA environment, two things are required, he says. The first is management that doesn't get frustrated by the need for agility, but instead gets empowered by it. The second is an "extremely resilient" senior team, which Halamka says he has.

"We've learned that every time a new project or new imperative comes up, you don't say, 'Woe is me, I'm a victim.' Instead, you study the possibilities and understand how it fits into the context of what you're doing. It requires almost daily reprioritization of activities."

The swift embrace of the bring-your-own-device movement at Beth Israel Deaconess is a prime example. "We support 7,000 iPhones and 2,000 iPads, and I didn't buy a single one," Halamka notes. "We've had to rapidly innovate layers of security that keep the balance between ease of use and confidentiality with regulatory compliance. That meant redoing the operating plan with extra dollars and staff focused on security issues. That wasn't in the [original] plan. That's something society inflicted on us."

3 Be a Chameleon

Unable to completely control her environment, P&G's Clement-Holmes has embraced a management strategy based on what can be controlled.

"VUCA is a lot about what you don't know. What we want is for people to focus on what they do know and can control," she says. For example, rather than waiting to get 20 people together for a meeting, which could take as long as 12 months given conflicting schedules, "get the people you have now and trust those people to start working on the problem," she says.

"In VUCA, you're making things up as you go along. We tell people not to wait for everything to be 100% perfect and don't make the simple complex. Go with your gut and your best professional instinct," she adds.

As an IT leader in a VUCA world, Clement-Holmes says her

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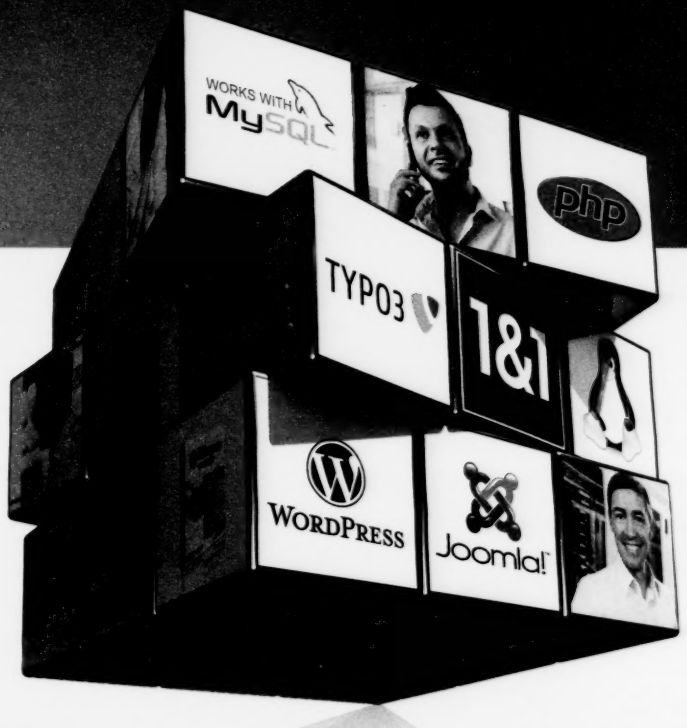

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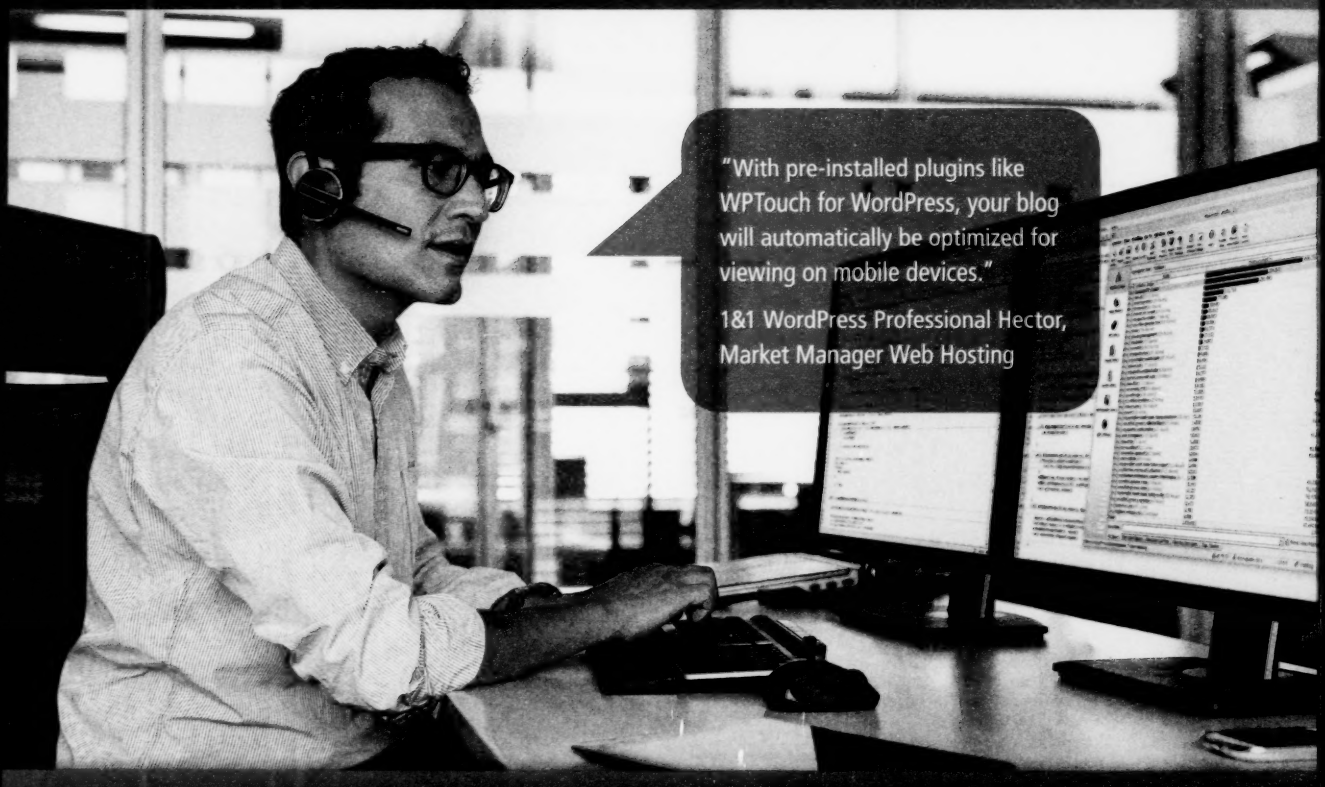
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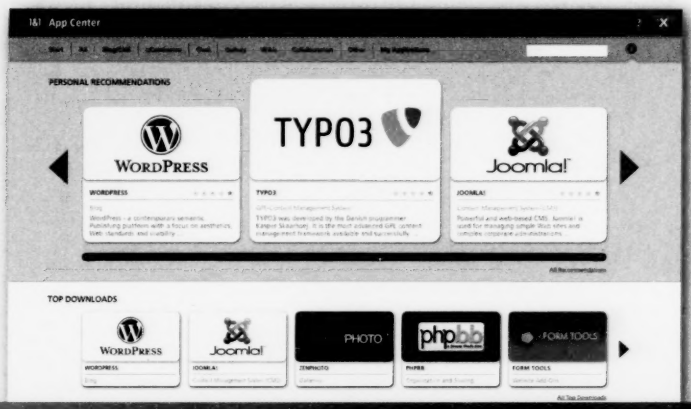

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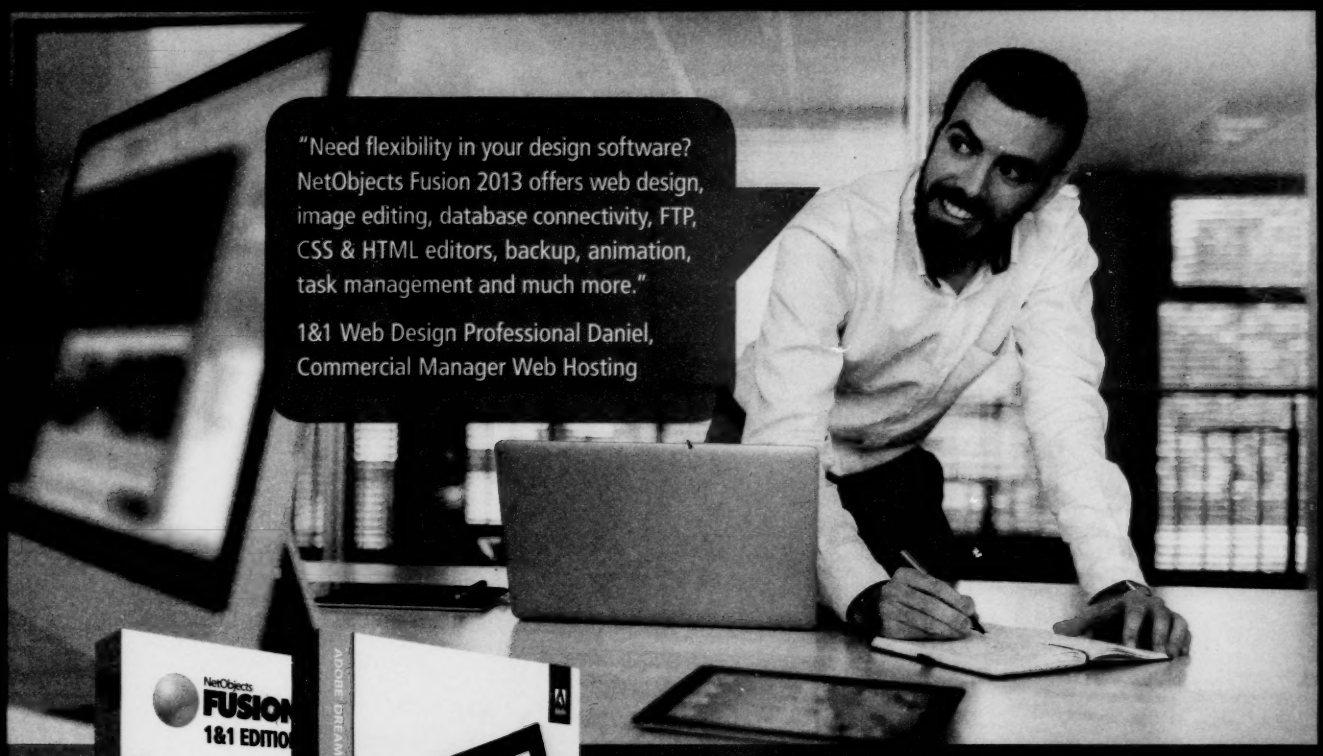
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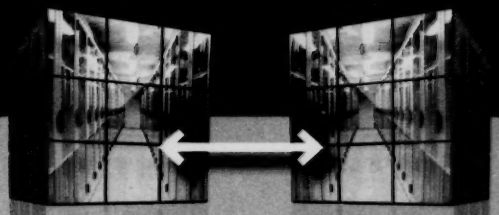

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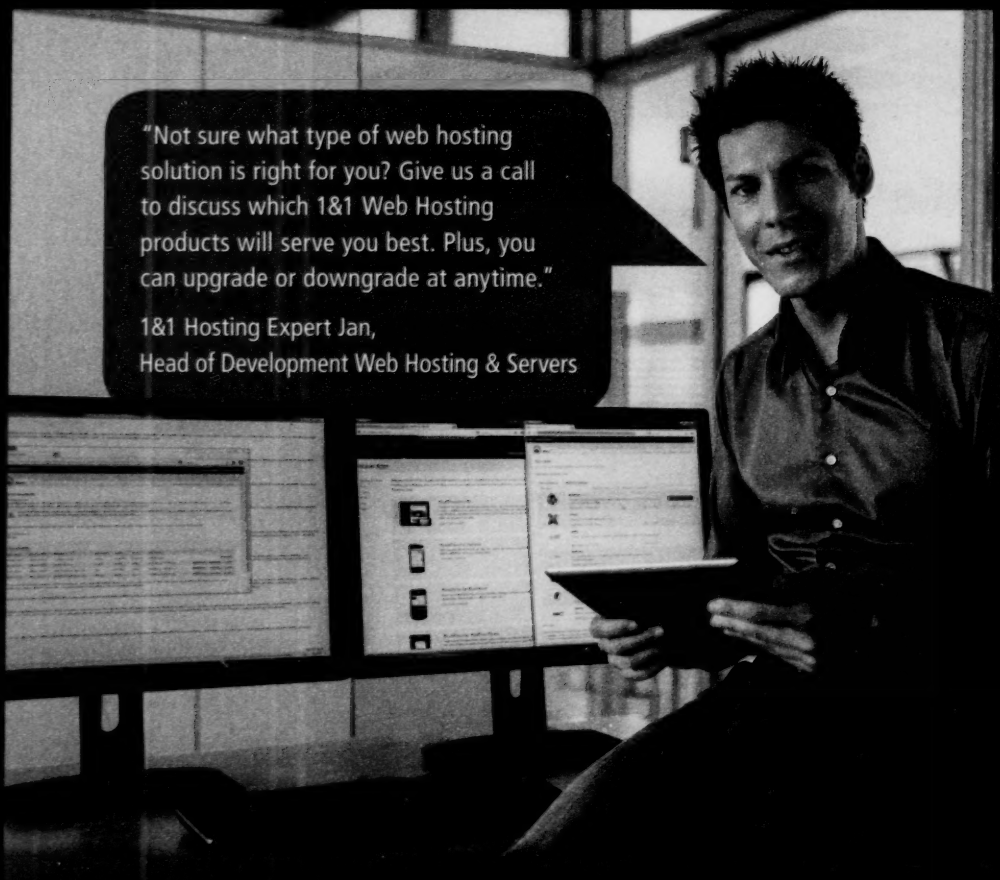
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> **[The cloud] enables a fail-fast culture because it's asset-light. You can quickly figure out whether it has legs, and if it does, build it out.**
>
> **GRAHAM CALDER,** CTO, PEARSON PLC

totem is a chameleon, the lizard whose eyes can rotate and focus separately to observe two different objects simultaneously. This is because IT must pivot between long-term growth and short-term efficiency gains, "regardless of VUCA," she says.

"At P&G, we have to increase revenue by billions every single year, and we've had our share of headwinds like commodity costs, the global recession and economic instability in Europe. There are a lot of levels of uncertainty, and it will never go back to the way it was," she says. "The pace of change is also different. Before, the windows were wider and longer and you had more time."

At the same time, IT must aggressively drive cost savings and productivity improvement. That means much shorter planning cycles and a need to continually reinvent the IT organization.

"Predicting what the business will be five years out is not realistic," she says. "Five years is forever. IT years are like dog years."

Two years ago, P&G created an incubator organization called FLOW, which Clement-Holmes describes as "a kind of special forces to quickly address really wicked business problems with dedicated full-time staffers with the right skills."

In a FLOW initiative at the 2010 Winter Olympics in Vancouver, members of the team quickly set up a P&G-sponsored house where Olympians could visit with family members. "They needed to have it up and running in two weeks," she recalls. "With FLOW, we can staff a project with the right staff with the right skills in less than two days."

She likens the group to a medical triage unit. "They assess what you need and get you going out the door to the right place. But if they need to do surgery on the spot, they can do that, too." Every year, 20% of FLOW team members are transitioned out of the unit "so we have more people with a mindset of agility," she says.

4 Lighten Up

At Pearson PLC, a London-based company that offers education services worldwide, globalization and a seemingly insatiable consumer appetite for online learning are driving VUCA to new levels.

"One of the biggest shifts has been from a local to a global focus," says Pearson CTO Graham Calder. For example, with demand for English language training skyrocketing, particularly in Brazil and China, he says, "We're teaching English in a consistent way on a global scale."

The new and growing demand has prompted a seismic shift in IT strategy and technology investments, from on-premises enterprise systems to cloud-based and consumer technologies.

"We put consumer technology at the heart of our technology strategy and made the decision to embrace cloud knowing that it can mean compliance challenges," Calder says. This kind of "asset-light" computing infrastructure enables Pearson to expand quickly into new markets. An added benefit is the ability to "fail fast" and move on quickly, because the technologies are cheaper and easier to drop when something isn't working out.

In comparison, when there's a big financial investment that would have to be written off if a project were canceled, "it makes people continue longer down the path than they should," says Calder. The cloud, he says, "enables a fail-fast culture because it's asset-light. You can quickly figure out whether it has legs, and if it does, build it out."

While building a new messaging collaboration platform, for example, Calder's team made several midstream course changes.

"We lost maybe two to three weeks but didn't write off anything of significance. Often these kinds of things happen on a regular basis and don't get elevated to leadership," he says. "In some ways, that's a measure of success. A big decision can be made because the failure identified is relatively small and constrained and doesn't need a lot of executive support to authorize it."

But an asset-light strategy is a major mindset shift, especially for executive leadership. To be successful and agile, top management must stop viewing technology as a cost to be managed and instead see it as an opportunity to be exploited, he says. "When you start to view technology through that lens, you come to different decisions about how to govern it. As an IT leader, you have to trust your staff's knowledge and choices."

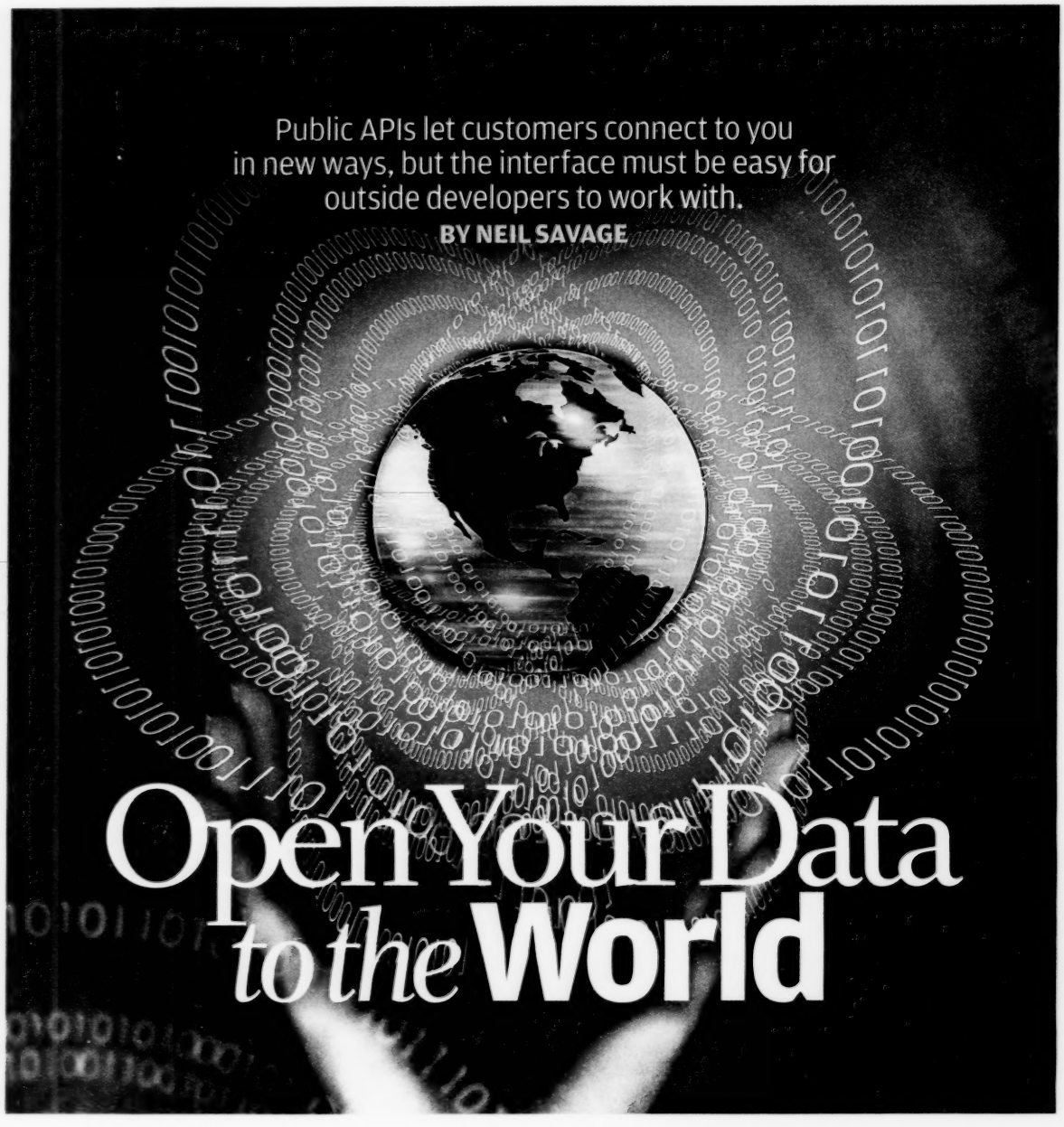
"CIOs used to talk about enterprise-grade technology. Now, it's all about consumer-grade," says Vince Campisi, CIO and Lean Leader at GE Intelligent Platforms in Charlottesville, Va. "It's all about whether technology can stand up in a consumer environment. Twitter and Facebook are how people are connecting, and it's really starting to change how industries operate," he says. "Now you have business leaders motivated and understanding and paranoid about how this stuff can disrupt their industry."

Vince Campisi, CIO and Lean Leader, GE Intelligent Platforms.

At Covanta, failing fast and delivering projects in chunks are both cornerstones of IT's strategy for delivering business value as quickly as possible in today's VUCA environment, says Kippelman.

Over the past two years, IT created and delivered more than two dozen applications using a tool called QlikView. Each of the applications took no more than two weeks to develop.

"I'd rather release something 10 times over seven or eight months than have one release in eight months," he says. "In a world where Facebook updates their software in some cases every day, I think business is coming around to understanding this. There's more support for it." ◆



Public APIs let customers connect to you in new ways, but the interface must be easy for outside developers to work with.

BY NEIL SAVAGE

Open Your Data to the World

WHEN NEIL FANTOM, a manager at the World Bank, sat down with the organization's technology team in 2010 to talk about opening up the bank's data to the world at large, he encountered a bit of unfamiliar terminology. "At that time I didn't even know what 'API' meant," says Fantom.

As head of the World Bank's open data initiative, which was announced in April 2010, Fantom was in charge of taking the organization's vast trove of information, which previously had been available only by subscription, and making it available to anyone who wanted it. The method of doing that, he would learn, would be an application programming interface, or API.

The API would put thousands of economic indicators, including rainfall amounts, education levels and birth rates — with some metrics going back 50 years — at the disposal of developers to mix and match and present in any way that made sense to them. The hope was that this would advance the bank's mission

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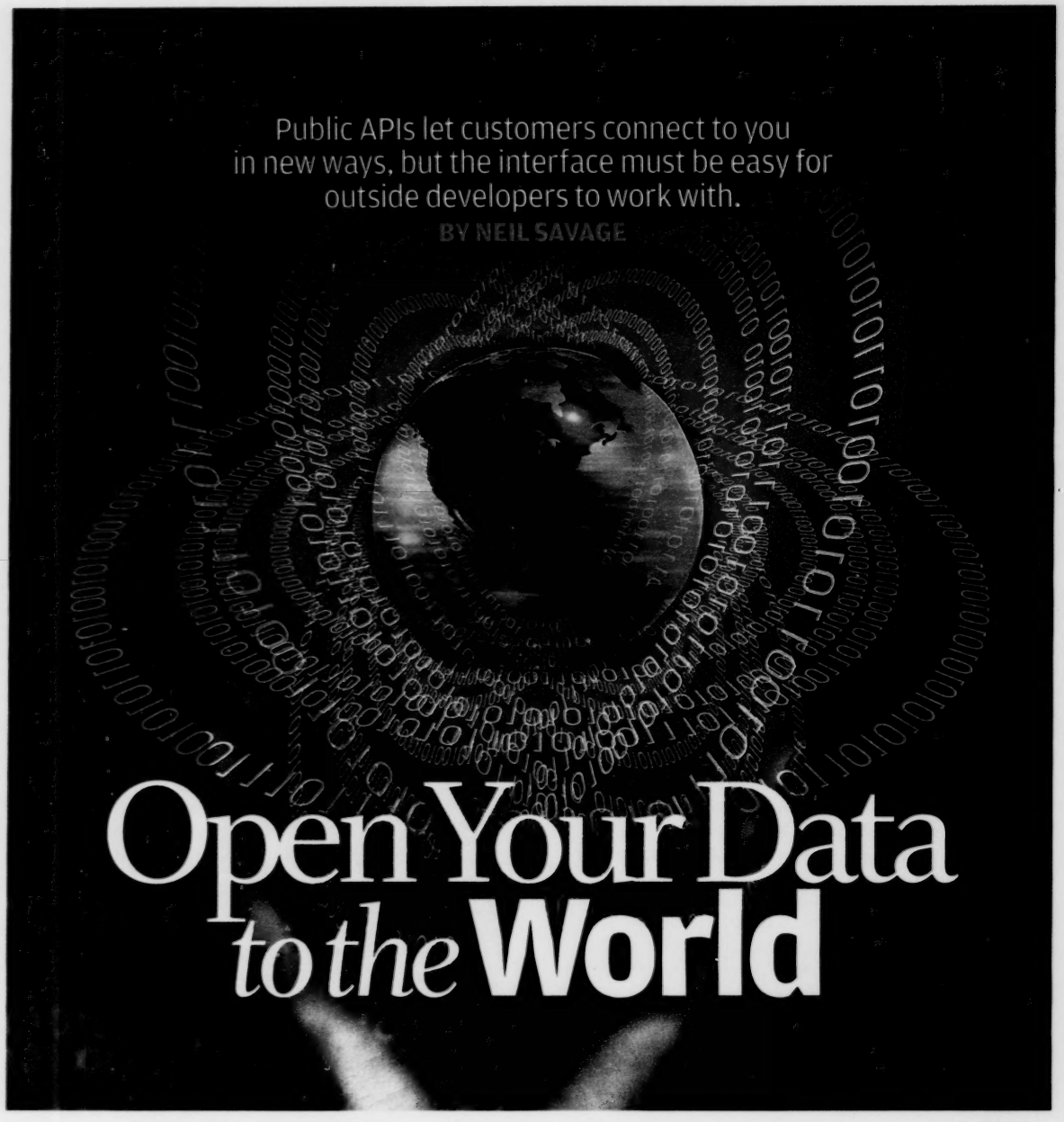

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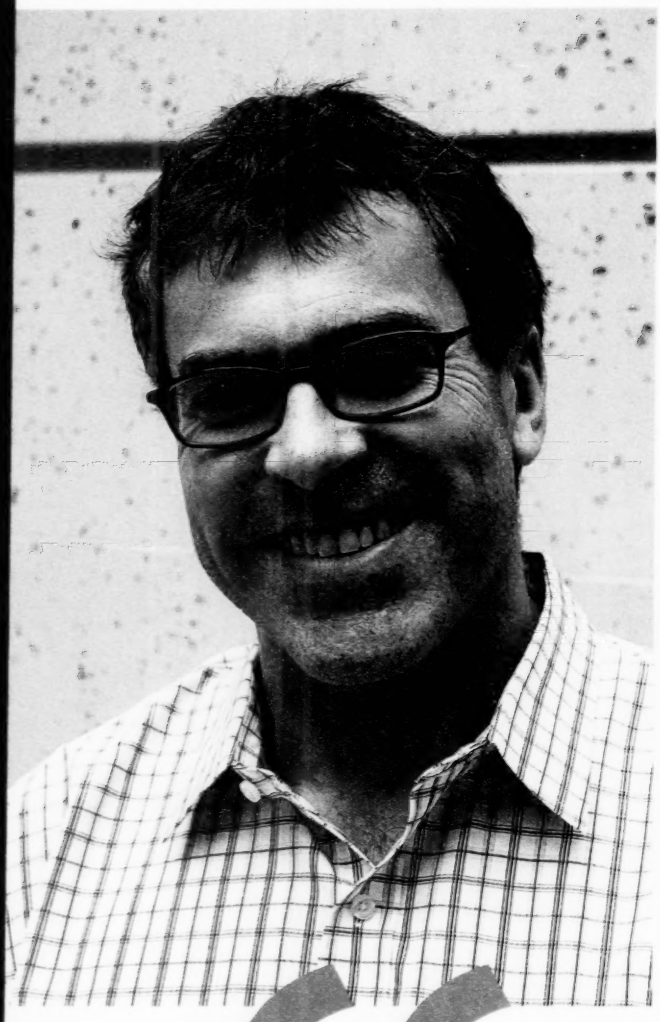

There are many people outside the bank who can do things with the data set we never thought about.

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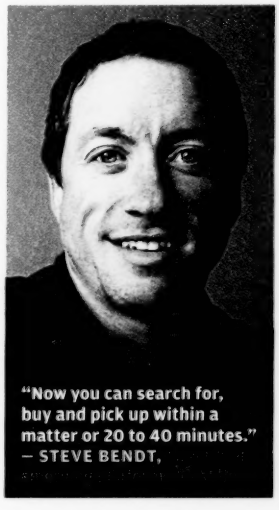
One developer, for instance, created an app that married the bank's rainfall data to Google Maps to estimate how much rainwater could be collected on rooftops and subsequently used to water crops in different parts of the world. Another app provides facts about energy consumption and shows individuals what they can do to fight climate change.

Fantom and the World Bank aren't alone in such pursuits. A decade ago, open APIs were a novelty, but in the past few years they've been put to use at an accelerating rate. ProgrammableWeb, a website that tracks public APIs, listed more than 8,800 in early April. According to the site, it took eight years, from 2000 to 2008, for the number of APIs to reach 1,000, and then just another 18 months to hit 2,000. The jump from 7,000 to 8,000 took just three months.

The APIs cover a wide range of categories, including business, shopping, messaging, mapping, telephone, social, financial and government, according to ProgrammableWeb. They're becoming as necessary to an organization as a website. "In business today, an open API is more or less table stakes. It's something you have to have," says Stephen O'Grady, an analyst at RedMonk, an analysis firm that focuses on developers. "Increasingly, your traction is going to be driven by how open and how programmatically manipulable your product is."

An Evolving Model

When Best Buy first launched its API, BBYOpen, in 2009, it gave developers access only to the chain's products catalog, with descriptions and prices for all the items it had on sale, in the hopes that doing so would bring in more customers. That was part of a deliberate strategy to start slowly, says Steve Bendt, director of emerging platforms at Best Buy. "We had to prove these things over time," he says. "We started to prove out that this is a very vibrant and viable area to pursue."

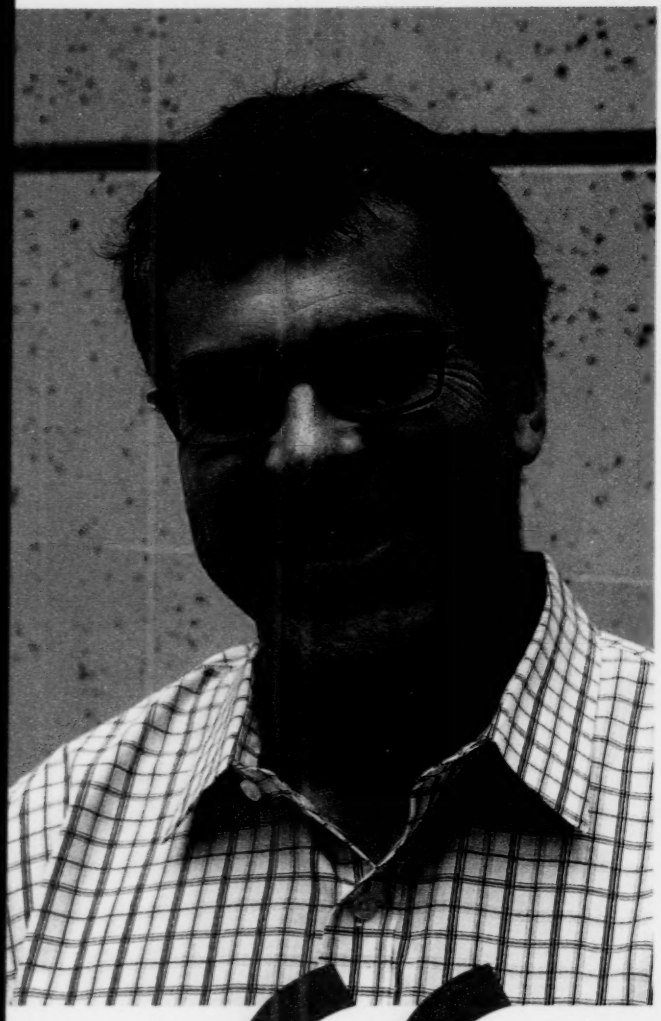


"Now you can search for, buy and pick up within a matter or 20 to 40 minutes."
— STEVE BENDT,

But external developers wanted more, so the company added the ability to access reviews and ratings for products, find nearby stores, check whether certain products were available at particular stores, and purchase items through the website via mobile app, perhaps with a single click if the user had linked a credit card to the app.

It's been a hit. The mobile apps ShopSavvy, RedLaser and Milo all use BBYOpen. The makers of the app get a commission on sales through Best Buy's affiliate program. Shoppers can search for an item, or scan a bar code, and get information on pricing from various sellers.

Of course, that could mean that a customer using the app might wind up buying from a Best Buy competitor, but Bendt says that since websites and mobile apps have changed how people shop, what's important for Best Buy is to be in the mix. "If we're not in the consideration set, that's a missed opportunity." And the fact that the API makes it possible for people to find out if products they've purchased are available for pickup at nearby stores helps give Best Buy a competitive edge over online-only retailers, he says. "Now you can search for, buy and pick up within a matter or 20 to 40 minutes," says Bendt.



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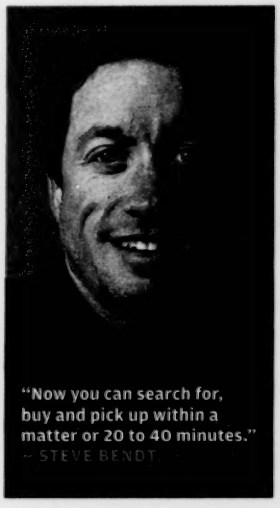

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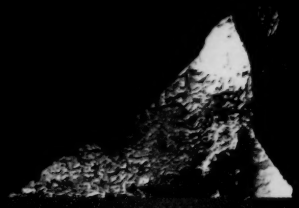

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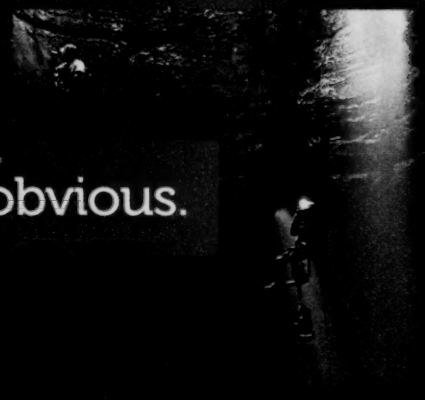

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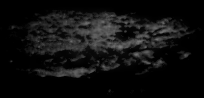

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The idea of an in-store pickup option actually came from external developers, Bendt says, and it took the chain some effort to adapt its legacy system to make inventory data available through the API; the data needed to be reformatted to be compatible. "The systems were built at a time before Web services and APIs were in active use," he explains. "It wasn't built in a way to expose it externally to the developer."

The specifics of how the team did that varied depending on the data source, but generally they tried to expose some snapshot of the data, updated as frequently as possible. If the data proved useful, they found ways to make it available in closer to real time.

Getting existing systems to work with the new API was also a challenge at the World Bank, says Malarvizhi Veerappan, the bank's open data systems lead. Her group originally struggled with latency issues because their 8,000 economic indicators were not all directly linked to each another. It was important, she says, to create a structure that could incorporate all that historical data and grow as new information accumulated.

"We didn't want the API to be a separate application. We wanted it to be part of everything else we did with the data."
— MALARVIZHI VEERAPPAN,

"We didn't want the API to be a separate application. We wanted it to be part of everything else we did with the data," she says. "We needed to connect it back to our data system. It did require our improving our internal data system."

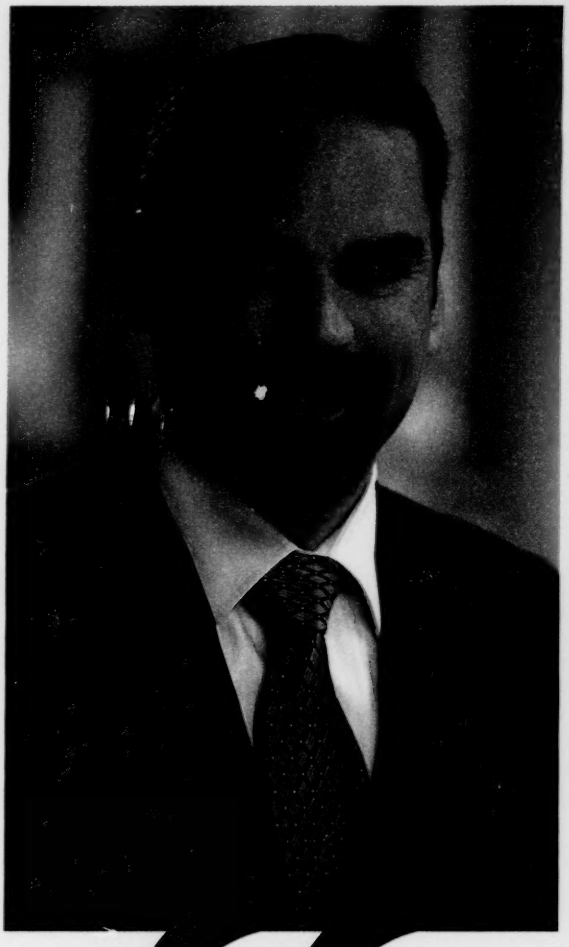
As the API grew, the team added performance monitoring and instituted policies to ensure good traffic flow. The organization also increased server capacity and added server redundancy to ensure availability of the API.

When financial information provider Bloomberg LP launched its Open Market Data Initiative in February 2012, the new open API — BLPAPI — was actually Version 3 of the software development kit the company had already been using internally, says Bloomberg CTO Shawn Edwards. In the old days, Bloomberg customers were given a dedicated terminal that connected them to the company's mainframe, which delivered market data, news and analysis.

Bloomberg's project has since evolved into a software package that customers install on their own systems. Even before making it open, the company used the API to develop specific applications that allow customers to manipulate Bloomberg data on their own desktops.

With the launch of its open API, the company is now allowing customers to create their own apps, such as watch lists for selected securities or their own trading systems. It also allows outside developers to create apps that draw on other data sources besides Bloomberg's. "We're not giving away market data. What this allows people to do is integrate with other services," Edwards says. "The API is a piece of software that connects to the Bloomberg cloud."

It makes sense to let others do the app development, he explains. "We're not in the business of selling software," he says.



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SHAWN EDWARDS, CTO, BLOOMBERG

"We're going to win their business by providing the best services and the best data."

When Bloomberg put out the open API, it decided to remove some of the features that the previous versions supported. There was discussion as to whether the API should be backward-compatible. "We said no," Edwards says. That meant some customers wound up with features that no longer worked, but Edwards says it makes the API less cluttered with obsolete functions.

Like most open APIs, the BLPAPI supports a variety of

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languages, so a developer can choose the best one for his app. Someone running an overnight batch process might choose Perl, or the recently released Python version. An electronic trading system would probably run on C or C++. Quantitative analysts, or quants, generally use the data in Matlab. The API also supports Java, .Net and C#, and Edwards says some developers are using an R wrapper as well.

One key to making an API successful lies in making it easy to use. Back in 2000, RedMonk's O'Grady says, APIs often used Web services protocols, but those proved too complex. Now about three quarters of all APIs are REST-based, according to ProgrammableWeb, with SOAP a distant second. "Because developers overwhelmingly preferred this, it's now the dominant protocol for API systems," O'Grady says.

The Importance of Clarity

Another important requirement is having extensive, clear documentation, and tools to help developers do their jobs. Bloomberg's initial documentation was aimed more at the financial experts who are its customers, but it had to be reworked to tell developers what they needed to know.

Bloomberg will soon attempt to make BLPAPI easier for developers to use by providing a replay tool that will allow them to perform trial runs of their apps. Best Buy's BBYOpen also gives developers a set of tools, including a test console to run apps and an automatic widget generator. The World Bank offers a query builder that lets developers select options.

Tools and ideas for APIs don't all flow outward from the organizations; external developers often provide information and frameworks to help one another out. BBYOpen, for instance, offers libraries created by developers in Java, .Net, PHP and other languages. At the World Bank, there's a discussion forum where developers can ask questions and get answers from their peers.

"They don't wait for us to respond to questions in the forum," says Veerappan, who is working to add features to the forum and convert it into a knowledge base. "It's kind of interesting to see the knowledge that other developers have gained in the API."

Successful APIs tend to have MIT-style open-source software licenses; the World Bank, for example, uses an open source attribution license. O'Grady says one key to success is being very clear about the terms of service, and not having an overly restrictive license that discourages use.

For instance, he says Stack Overflow, a collaboratively edited question-and-answer site for programmers, has a very nice API, but the terms of using it are difficult to navigate. And he notes that Twitter irritated some developers by being too demanding about issues such as how the time stamp was formatted, or insisting that the word *tweet* be capitalized. While developers are unlikely to shun a widely used service such as Twitter for being difficult to work with, O'Grady says, "if your product isn't that popular [it's possible that] people will abandon it."

Cultural Resistance

Another nontechnological challenge to creating an open API is getting other people in your organization to cede some control, because they're likely accustomed to dealing with proprietary information and maintaining authority over their brand. "I had to do a lot of convincing," Bloomberg's Edwards says. "It's a different way of thinking, when you've been controlling your product." But he says it was important to distinguish between the market data Bloomberg sells and things like the symbology and software that the company doesn't need to control. "The time for all these proprietary interfaces is gone," he says. "It doesn't add value anymore."

Best Buy's Bendt faced similar concerns. "It was tough when we first started talking about an API platform," he says, noting that colleagues wondered, "What are they going to build? What if they create a bad experience?" The company addressed that with rules about how developers could use the data: They must attribute it to Best Buy, for instance, and they can't appropriate it for other purposes. Best Buy doesn't preapprove apps, but it does regular audits to make sure apps comply with the terms of service.

At the World Bank, there was concern that giving away data would mean giving up the revenue that paid for curation of the data. Fantom says the bank decided that a free model would be better for its main objective of fighting poverty. "By making these data available for free and using these tools, we've seen a massive increase in the use of our data," he says. "Once you start getting into this, it's pretty clear that this is the right thing to do."

All of these organizations say they are continually developing their APIs, adding new functionality, responding to feedback from developers and customers, and figuring out what data to make available. "You've got to release the right kind of data with the right documentation. Really, it comes down to what customer problems are you going to solve by doing what you do," Bendt says. "It's not a launch-it-and-leave-it type of capability. It's constant learning and constant improvement." ◆

Savage *is a freelance science and technology writer in Lowell, Mass. He can be reached at neil@stefan.com.*

Key Takeaways

Here's what you need to know about creating open APIs to your data:

- **Make it easy.** Outside developers -- those at your customers' shops -- may have great ideas for how to use the data you make available, but the API itself needs to be understandable and easy to work with. Clear documentation and helpful tools are must-haves.
- **Make sure your licensing terms are clear and fair.** Successful APIs tend to have MIT-style open-source software licenses.
- **Use REST** unless you absolutely need SOAP. About three quarters of all APIs are REST-based, according to ProgrammableWeb, with SOAP a distant second.
- **Be prepared for cultural resistance.** Some of the data "owners" may be reluctant to share the jewels. You might explain how the World Bank, Best Buy, Bloomberg and others have used the technique to reach customers in new ways and/or further their organization's mission.

— NEIL SAVAGE

FINALLY!

HR Reps Who 'Get' IT

As the market for tech talent heats up, some companies gain competitive advantage with HR staffers who specialize in IT recruitment. **BY MARY K. PRATT**

IF YOU'VE EVER had to hire someone in IT, this drill might sound familiar:

- **Step 1:** Explain to an overworked, underfocused human resources generalist what you need in a new hire.
- **Step 2:** Struggle to make clear the subtle differences among IT roles.
- **Step 3:** Toss out half of the résumés selected by the HR rep after Steps 1 and 2 prove ineffective.
- **Step 4:** Endure squirm-inducing interviews with the remaining candidates, who are still mismatched in one way or another.
- **Step 5:** Repeat.

Jean Scire feels your pain — that cycle of frustration was part of her life in previous IT positions. But no more. That's because Scire currently works for Philips North America, and Philips has an expert in hiring IT workers on its human resources staff, and that makes a world of difference, she says.

"Hiring is hard; there's a lot of time invested in it," says Scire, senior director of healthcare IT operations and programs at the Philips facility in Andover, Mass. "I want to make that whole process as lean as possible, because there's nothing worse than sitting in an interview two minutes in and knowing that I'm not going to hire [the interviewee]."

Julie Magliozzi, IT talent acquisition specialist for Philips, says her job is to understand what managers like Scire need and then find them the right candidates. "Even if we don't have a single open position, I'm always networking with top IT talent, kind of grooming them for when we do have openings," Magliozzi says. "I understand the needs of the people in my network, and I understand the needs of IT because I support only IT, so I can make the best match for both."

That's a valuable contribution when you consider how difficult finding the right candidate can be.

In February, IT staffing firm TEKsystems reported that it had conducted a survey in which 78% of the IT managers polled said that they agreed or strongly agreed that many IT résumés contain buzzwords that are irrelevant to the individual's experience. Moreover, 77% of IT leaders responding said that they agreed or strongly agreed that many IT résumés include exaggerations, and 40% said that they believe IT professionals commonly get positions for which they are unqualified.

The impact of such mismatches can be significant. In a CareerBuilder survey released last December, 69% of the employers polled reported that their companies were adversely affected by a bad hire in 2012, with 41% of those businesses estimating the cost of that bad hire to be more than $25,000 and 24% saying the bad hire cost

THINKSTOCK

them more than $50,000. Those cost estimates — which cover bad hires of all types of workers, not just IT employees — include recruiting and training costs, plus lost productivity.

Given those stakes, it's no surprise that companies like Philips, with approximately 2,100 IT employees around the world, including 460 in the U.S., are using in-house experts to smooth the process.

"It is certainly more efficient, because I don't have to ask questions A through Z every time," Magliozzi says. "I understand 20 of those 26 answers already. I know where we're going because I know what we've done in the past that worked, and what skill sets work within IT."

Tracking IT's Many Changes

Retaining an HR professional who specializes in IT makes sense given the current demand for certain tech skills and the generally changeable nature of IT, says Bruce Ballengee, president and CEO of Pariveda Solutions, a Dallas-based IT consulting firm.

IT is full of specialties with unique skill requirements, and every discipline and technology seems to have its own set of acronyms that only insiders understand. All of that could easily confuse and overwhelm an HR rep who's assigned to help on a one-off basis, says Ballengee, a founding member of the Society for Information Management's Enterprise Architecture Working Group. What's more, he adds, "IT specialties come and go, so that puts an extra burden on HR recruiters, more so than in other types of business disciplines."

It's not just hiring managers who benefit from having IT specialists in HR; candidates themselves may prefer to work with IT-conversant HR reps, and that in turn helps companies attract better talent, says Scott Hajer, a recruiting manager at Pariveda.

"These are people who are getting pinged by lots of recruiters, and being someone who speaks their language is going to allow you to engage them better and leave them with a better impression," he says. That enables the company to land sought-after candidates who may have been less impressed with other companies' generic hiring processes.

Bryan Banks, an associate manager of talent acquisition at Aflac in Columbus, Ga., has an IT specialist on staff and was himself an IT recruiter for 15 years. The value of the position comes from being able to really understand IT-speak.

"It's not just understanding acronyms, but understanding hardware, software, and the [differences] between, for example, a network engineer and a system administrator," he says. "Someone who is not an IT recruiter, it's not that they can't learn, but there is a heavy learning curve to understand all the systems."

That insight allows IT-focused recruiters to be proactive. Because they get to know the hiring managers, their teams, the culture and the department's road map, they're able to scout for talent before their company needs it, Banks says, echoing Philips' Magliozzi.

Companies that are too small to justify employing a full-time IT hiring specialist can still benefit by cultivating close relationships between their IT managers and third-party recruiters, says Claire Schooley, an analyst at Forrester Research.

"I've worked with companies where the outsourcers were almost like employees because they knew the company so well," says Schooley. "Companies that need very, very specialized IT people make sure the recruiters really talk with the managers and get inside their heads and make sure they understand what they need."

Schooley says many companies don't foster those kinds of relationships — with either in-house recruiters or outside headhunters. "The recruiting people see the job description and that's all they see, and they don't understand what the IT manager wants," she observes. "But the closer that relationship, the better the end product is."

At Publix Super Markets in Lakeland, Fla., fostering a good relationship between recruiters and IT professionals is a priority. The retailer's tech staffing and training function resides within the IT group. IT workforce manager Melanie McClellan, who reports to the director of IT finance, has a staff of three people who work with tech managers on recruiting, hiring and training for the IT team of 1,050.

"We build very strong relationships with our hiring managers, so we get to a place where we can anticipate their needs. We can align our efforts with their strategic goals, their unique microcultures," says IT recruiter Rhonda Burke, who reports to McClellan.

A leadership position that recently opened up in Publix's enterprise data warehouse group needed an updated job description. Because Burke had been working with the group and knew its strategy, she and senior IT management were able to quickly define the position's scope as well as required and preferred qualifications. "There's a nice dialogue that happens before the job posting so we're on point," she explains.

Marilyn Talbot, chief human resources officer at Ascension Health Information Services (AHIS), agrees that knowing the company well is key to making great IT hires.

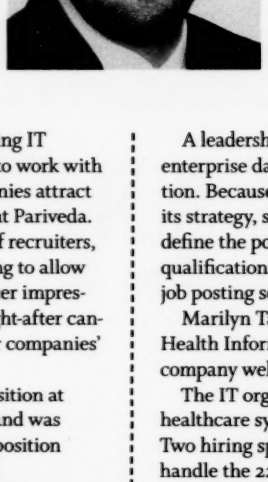
The IT organization that serves Ascension Health, a Catholic healthcare system, AHIS employs nearly 3,000 IT associates. Two hiring specialists, including recruiter Kraig Whittenberg, handle the 225 IT job openings that AHIS averages each year.

Asking the right questions and figuring from the answers whether candidates will fit into the IT culture, where they'll best serve IT, what managers they'll best mesh with, and where they might move within the company in the future — that's the real art of recruiting, Whittenberg says.

"It's not just knowing the skill sets, it's understanding the overall picture," he says. "And the better you can be at that, the further ahead you are." ◆

Pratt *is a* Computerworld *contributing writer in Waltham, Mass. You can contact her at marykpratt@verizon.net.*

> **"It's not just understanding acronyms but understanding hardware, software, and the [differences] between ... a network engineer and a system administrator."**
>
> **BRYAN BANKS,** ASSOCIATE MANAGER OF TALENT ACQUISITION, AFLAC



Security Manager's Journal

MATHIAS THURMAN

A Cheap Date for 2014 Budget

Neither of our manager's two top security priorities for the coming year will break the bank.

IT'S BUDGET SEASON, which means I get to create a wish list of security goodies I'd like to buy.

I prefer to have a theme for my wish list. A year ago, it was data protection, and we made significant investments in data loss prevention and file encryption. For 2014, I have a double theme: Harden the core, and educate users. And I won't have to ask for a lot of money for either one.

We've built up quite an arsenal of security tools over the past couple of years. We've got firewalls that not only restrict traffic, but also conduct malware inspection, intrusion prevention, URL filtering and access restriction at the application layer. We have data leak prevention, security event management, endpoint protection, file encryption, network access control and more.

But weaknesses remain. Our firewall rules could be tightened. Networks could be further segmented. Our server baseline image could be further hardened. We need to get better at patch management and endpoint protection, and we need to get a handle on unmanaged devices. We could further restrict URL filters, block risky applications and conduct more assessments. I would like to roll out full disk encryption to all endpoints, a plan made easier by already having Microsoft BitLocker bundled with our enterprise license.

In fact, we should be able to leverage several of our existing technologies to further harden our core. Meanwhile, I'll spend money to save money by expanding security operations offshore.

Technology is a great security aid, of course, but it will never eliminate incidents. Our incident categories often involve phishing attacks, social engineering, off-network downloads of hostile programs and inadvertent data leakage. What do they all have in common? Users. I'd say about 80% of our security incidents could have been prevented if someone had just thought about security. That's why I expect a payoff from a greater focus in 2014 on security awareness and training.

We already have mandatory general awareness training, and all employees are required to take it once a year and confirm that they understand it. But I want to take the program to another level. First, this will mean expanding the content and the users' exposure to materials by including short awareness courses in specific areas of both security and compliance. I'll then work with our learning management team on providing additional mandatory training for certain employees, based on job function. For example, the R&D group would be required to take application security awareness training, help desk technicians would be expected to take courses on social engineering and incident response, members of the legal team would have to take short courses on the privacy and security implications of compliance topics such as PCI and HIPAA, and customer-facing employees would be required to take training in handling data. I'll also ensure that security awareness is included in our new-hire orientation program, and I'll provide security awareness presentations at remote offices when I can during my travels.

Besides increasing training, I'd like to bombard employees with security awareness reminders, since frequent reminders reinforce once-a-year exercises. For example, I plan to push security awareness screen savers to every Microsoft endpoint. In our break areas, we have monitors that display sales quotas, marketing materials and other company announcements. Why not include a security awareness slide from time to time?

Finally, to measure the effectiveness of the awareness training, I plan every once in a while to send out emails disguised as phishing attacks, then collect statistics on how many employees take the bait. If I've done my job correctly, that number should decrease over time. ◆

This week's journal is written by a real security manager, ***"Mathias Thurman,"*** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

... the discussions about security! **computerworld.com/blogs/security**

> **For 2014, I have a double theme: Harden the core, and educate users.**

Trouble Ticket

- It's time to draw up a security wish list for the 2014 fiscal year.
- Focus on hardening the core and broadening security awareness.

them more than $50,000. Those cost estimates — which cover bad hires of all types of workers, not just IT employees — include recruiting and training costs, plus lost productivity.

Given those stakes, it's no surprise that companies like Philips, with approximately 2,100 IT employees around the world, including 460 in the U.S., are using in-house experts to smooth the process.

"It is certainly more efficient, because I don't have to ask questions A through Z every time," Magliozzi says. "I understand 20 of those 26 answers already. I know where we're going because I know what we've done in the past that worked, and what skill sets work within IT."

Tracking IT's Many Changes

Retaining an HR professional who specializes in IT makes sense given the current demand for certain tech skills and the generally changeable nature of IT, says Bruce Ballengee, president and CEO of Pariveda Solutions, a Dallas-based IT consulting firm.

IT is full of specialties with unique skill requirements, and every discipline and technology seems to have its own set of acronyms that only insiders understand. All of that could easily confuse and overwhelm an HR rep who's assigned to help on a one-off basis, says Ballengee, a founding member of the Society for Information Management's Enterprise Architecture Working Group. What's more, he adds, "IT specialties come and go, so that puts an extra burden on HR recruiters, more so than in other types of business disciplines."

It's not just understanding acronyms but understanding hardware, software, and the [differences] between ... a network engineer and a system administrator.

BRYAN BANKS, ASSOCIATE MANAGER OF TALENT ACQUISITION, AFLAC

It's not just hiring managers who benefit from having IT specialists in HR; candidates themselves may prefer to work with IT-conversant HR reps, and that in turn helps companies attract better talent, says Scott Hajer, a recruiting manager at Pariveda.

"These are people who are getting pinged by lots of recruiters, and being someone who speaks their language is going to allow you to engage them better and leave them with a better impression," he says. That enables the company to land sought-after candidates who may have been less impressed with other companies' generic hiring processes.

Bryan Banks, an associate manager of talent acquisition at Aflac in Columbus, Ga., has an IT specialist on staff and was himself an IT recruiter for 15 years. The value of the position comes from being able to really understand IT-speak.

"It's not just understanding acronyms, but understanding hardware, software, and the [differences] between, for example, a network engineer and a system administrator," he says. "Someone who is not an IT recruiter, it's not that they can't learn, but there is a heavy learning curve to understand all the systems."

That insight allows IT-focused recruiters to be proactive. Because they get to know the hiring managers, their teams, the culture and the department's road map, they're able to scout for talent before their company needs it, Banks says, echoing Philips' Magliozzi.

Companies that are too small to justify employing a full-time IT hiring specialist can still benefit by cultivating close relationships between their IT managers and third-party recruiters, says Claire Schooley, an analyst at Forrester Research.

"I've worked with companies where the outsourcers were almost like employees because they knew the company so well," says Schooley. "Companies that need very, very specialized IT people make sure the recruiters really talk with the managers and get inside their heads and make sure they understand what they need."

Schooley says many companies don't foster those kinds of relationships — with either in-house recruiters or outside headhunters. "The recruiting people see the job description and that's all they see, and they don't understand what the IT manager wants," she observes. "But the closer that relationship, the better the end product is."

At Publix Super Markets in Lakeland, Fla., fostering a good relationship between recruiters and IT professionals is a priority. The retailer's tech staffing and training function resides within the IT group. IT workforce manager Melanie McClellan, who reports to the director of IT finance, has a staff of three people who work with tech managers on recruiting, hiring and training for the IT team of 1,050.

"We build very strong relationships with our hiring managers, so we get to a place where we can anticipate their needs. We can align our efforts with their strategic goals, their unique microcultures," says IT recruiter Rhonda Burke, who reports to McClellan.

A leadership position that recently opened up in Publix's enterprise data warehouse group needed an updated job description. Because Burke had been working with the group and knew its strategy, she and senior IT management were able to quickly define the position's scope as well as required and preferred qualifications. "There's a nice dialogue that happens before the job posting so we're on point," she explains.

Marilyn Talbot, chief human resources officer at Ascension Health Information Services (AHIS), agrees that knowing the company well is key to making great IT hires.

The IT organization that serves Ascension Health, a Catholic healthcare system, AHIS employs nearly 3,000 IT associates. Two hiring specialists, including recruiter Kraig Whittenberg, handle the 225 IT job openings that AHIS averages each year.

Asking the right questions and figuring from the answers whether candidates will fit into the IT culture, where they'll best serve IT, what managers they'll best mesh with, and where they might move within the company in the future — that's the real art of recruiting, Whittenberg says.

"It's not just knowing the skill sets, it's understanding the overall picture," he says. "And the better you can be at that, the further ahead you are." ◆

Pratt *is a* Computerworld *contributing writer in Waltham, Mass. You can contact her at marykpratt@verizon.net.*

Security Manager's Journal

MATHIAS THURMAN

A Cheap Date for 2014 Budget

Neither of our manager's two top security priorities for the coming year will break the bank.

IT'S BUDGET SEASON, which means I get to create a wish list of security goodies I'd like to buy.

I prefer to have a theme for my wish list. A year ago, it was data protection, and we made significant investments in data loss prevention and file encryption. For 2014, I have a double theme: Harden the core, and educate users. And I won't have to ask for a lot of money for either one.

We've built up quite an arsenal of security tools over the past couple of years. We've got firewalls that not only restrict traffic, but also conduct malware inspection, intrusion prevention, URL filtering and access restriction at the application layer. We have data leak prevention, security event management, endpoint protection, file encryption, network access control and more.

But weaknesses remain. Our firewall rules could be tightened. Networks could be further segmented. Our server baseline image could be further hardened. We need to get better at patch management and endpoint protection, and we need to get a handle on unmanaged devices. We could further restrict URL filters, block risky applications and conduct more assessments. I would like to roll out full disk encryption to all endpoints, a plan made easier by already having Microsoft BitLocker bundled with our enterprise license.

In fact, we should be able to leverage several of our existing technologies to further harden our core. Meanwhile, I'll spend money to save money by expanding security operations offshore.

Technology is a great security aid, of course, but it will never eliminate incidents. Our incident categories often involve phishing attacks, social engineering, off-network downloads of hostile programs and inadvertent data leakage. What do they all have in common? Users. I'd say about 80% of our security incidents could have been prevented if someone had just thought about security. That's why I expect a payoff from a greater focus in 2014 on security awareness and training.

We already have mandatory general awareness training, and all employees are required to take it once a year and confirm that they understand it. But I want to take the program to another level. First, this will mean expanding the content and the users' exposure to materials by including short awareness courses in specific areas of both security and compliance. I'll then work with our learning management team on providing additional mandatory training for certain employees, based on job function. For example, the R&D group would be required to take application security awareness training, help desk technicians would be expected to take courses on social engineering and incident response, members of the legal team would have to take short courses on the privacy and security implications of compliance topics such as PCI and HIPAA, and customer-facing employees would be required to take training in handling data. I'll also ensure that security awareness is included in our new-hire orientation program, and I'll provide security awareness presentations at remote offices when I can during my travels.

Besides increasing training, I'd like to bombard employees with security awareness reminders, since frequent reminders reinforce once-a-year exercises. For example, I plan to push security awareness screen savers to every Microsoft endpoint. In our break areas, we have monitors that display sales quotas, marketing materials and other company announcements. Why not include a security awareness slide from time to time?

Finally, to measure the effectiveness of the awareness training, I plan every once in a while to send out emails disguised as phishing attacks, then collect statistics on how many employees take the bait. If I've done my job correctly, that number should decrease over time. ◆

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"For 2014, I have a double theme: Harden the core, and educate users.

Trouble Ticket

» **At issue:** It's time to draw up a security wish list for the 2014 fiscal year.

» **Action plan:** Focus on hardening the core and broadening security awareness.

Career Watch

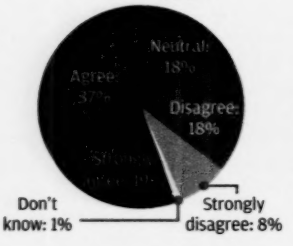
IT Professionals on the IT Profession

Over 2,400 IT professionals were asked to give their thoughts on the biggest IT industry trends. Here's some of what the TEKsystems survey found:

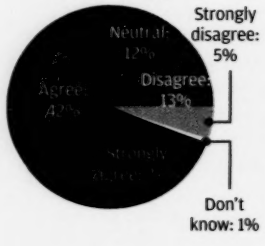
Note: Totals may not equal 100% because of rounding.

Do you agree that ...

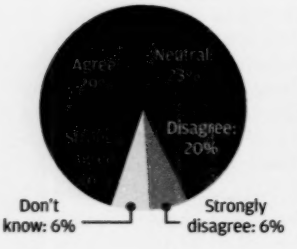
... there is a shortage of IT professionals in the U.S. (demand is greater than the supply)?



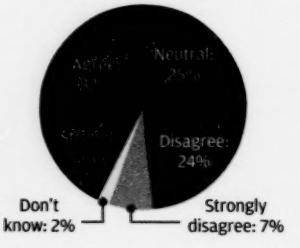
... demand for IT professionals will always outpace supply, since technology is always evolving?



... the company you currently work for struggles to attract, retain and develop its IT workforce?

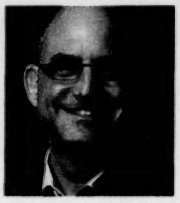


... the shortage of IT professionals in the U.S. makes your life difficult because of the high expectations that are placed on you?



What's the best thing about being an IT professional?

1. **Good money**
2. **Exciting, cutting-edge work**
3. **IT is a sustainable field, meaning demand will always be high**



Q&A

Scott Dorsey

The CEO of ExactTarget talks about the importance of **fostering a happy workforce.**

What is the value of having a happy workforce? Happy employees lead to happy clients. We believe that employee engagement and satisfaction are the best leading indicators of client success. At ExactTarget, we focus on building an environment that attracts the best talent and fosters entrepreneurship, teamwork and growth. When you mix talented and motivated employees with a culture of collaboration and putting clients first, business success usually follows.

How do you achieve that? Are perks and salary the key? Creating a strong company culture and happy workplace starts with being authentic and really caring for your employees. Once your heart is in the right place, then benefits like great work environment, strong healthcare benefits, competitive pay and education reimbursement all contribute to employee engagement. We find that our employees certainly care about compensation but are equally motivated by working with amazing people and are energized by all of the career opportunities that come with hypergrowth. We also provide equity incentives to all employees to align interests and reward success.

Why do you think more companies do not follow such practices to reap the benefits of happy workers? Unfortunately, some companies lose sight of the fact that their employees are their most valuable asset. We have invested significantly in our recruiting and learning and development functions to ensure we have the best employees and are providing them with the tools to be wildly successful. In addition, we often think of marketing from the inside out. As employees, we all need to be energized and inspired. We invest in quarterly meetings, an amazing annual user conference and many other events that accelerate learning, fun, relationship-building and inspiration.

— JAMIE ECKLE

Which IT skills are more likely to lead to contract/contingent work vs. permanent employment?

	Contract/contingent employment	Permanent employment
Developer	70%	30%
Programmer	61%	39%
Project manager	55%	45%
Help desk/support	52%	48%
Software engineer	51%	49%
Data scientist/statistician	45%	55%
Architect	45%	55%
Business analyst	42%	58%
Systems analyst	41%	59%
Network engineer	37%	63%
Database administrator	23%	77%
Network administrator	22%	78%

SOURCE: TEKSYSTEMS ONLINE SURVEY OF MORE THAN 2,400 IT PROFESSIONALS, Q4 2012

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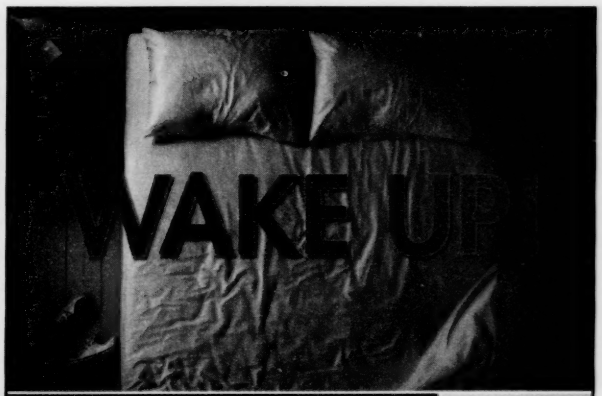

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Web Developer Positions (Mountain View, CA) Design, develop, modify, and/or test Google's web-based systems, architecture, and related features. Exp incl:
#1615.5104 web dvlpmnt using HTML, CSS, & Jscript; Ruby prog lang; Ruby on Rails web frmwrk; Unix based oper syst; HTTP protocol; OOD & dvlpmnt; & dvlpmnt using social network APIs.
#1615.5210: HTML, CSS, & Jscript;Python script prog; Linux shell script; web security & XSS prevention; algorithm design; dvlpmnt, test, & enhance prod &/or syst utilities; design, implement, test, & maint of subsyst to be accessed & used by other dvlprs; & HTML5.
Hardware Engineer (Mountain View, CA) **#1615.5287**: Design, develop, modify, and/or test hardware needed for various Google projects. Exp incl: reliability prediction tool; SQL script; quality & regulatory compliance modules in Agile; SPC, Process Capability, & Process Capability Index; & FMEA, DOE, data & SPC analysis. Position also requires American Society for Quality Cert & Six Sigma Green Belt Cert.
Network Test Engineer (Mountain View, CA) **#1615.903** Design, develop, and execute test plans for networking features, equipment, and systems. Exp incl: C or C++; script lang prog; Unix or Linux; test ntwrk solutions for srvc provider or datactr ntwrks; dvlpmnt & test Ethernet switch prod; & TCP/IP; ntwrk protocols; & routing protocols.
Software Engineer Positions (Mountain View, CA): Design, develop, modify, and/or test software needed for various Google projects. Exp. incl:
#1615.7071 syst sw as a part of a large parallel or distrib syst; design & implement large sw syst used in mission-critical prod environ; C++; multithread prog; & analyze & debug prob in large sw syst used in mission-critical prod environ.
#1615.5793: C++, Java, or PHP; SQL; OOD; high-perf/low-latency syst; algorithm design; data struct; databases; full prod dvlpmnt lifecycle & dplymnt; & sw dvlpmnt methodologies, incl Agile prog & test-driven dvlpmnt.
#1615.6856 C, C++ or Java; large syst sw design & dvlpmnt; Waterfall & Agile; shell script lang; & Unix or Linux.
#1615.5674 Java & C++ prog; distrib, multi-thread, & srvr-side prog of syst; Jscript; CSS, HTML, Closure, & AJAX; & data extract & analysis.
#1615.4490 Java sw eng'g; fraud detection analytics &/or bus intelligence; mach learn & data mining; R or Matlab; Unix; script lang, incl Perl or Python; & databases & SQL.
#1615.1316 algorithms & data struct; Java or C++; multithread & multiprocess; & database schema design & SQL.
#1615.2982: design & dvlpmnt of large syst; prog lang incl Perl; Java, C++, or Python; & Unix & Linux; leadership of team of sw engs through sw dvlpmnt lifecycle; on-call rotation supporting global-scale syst.
#1615.5575 C & C++; prog large code bases; distrib syst; parallel prog; perf eval & bottleneck diagnosis; syst profiling, tuning, & optimize; op syst; & compilers, file syst, storage syst, ntwrks, & databases.
#1615.1488 Java; Python; Jscript; web app dvlpmnt, incl HTML, CSS & Jscript; ntwrk tech, incl TCP/IP, HTTP, & HTTPS web app security; web privacy issues; C or C++; & ActionScript.

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 Attn: Keeshia Moultrie. Please reference job # below:
Site Reliability Engineer (Mountain View, CA) **#1615.2834**: Provide technical support necessary to ensure full availability of Google online services. Exp incl: Unix, Linux, &/or Windows; Python, C, C++, Java, Perl, Shell or PHP; tech troubleshoot; & perf tuning.
Software Engineer Positions (Mountain View, CA): Design, develop, modify, and/or test software needed for various Google projects. Exp. incl:
#1615.736 C, C++,& Obj-C; algorithms; multi-thread apps on mobile devices; OOD & arch; & optimization & perf issues on mobile devices; & dvlpmnt of iOS apps.
#1615.6157 C or C++; multithread; design of fault tolerant & recovery methodologies; test &dplymnt of critical sw components; adv algorithms & data struct; translation of specs to design & implement complex sw syst; & mobile tech.
#1615.6364 C++ & Python; fundamental data struct & algorithms; Linux dvlpmnt & version cntrl syst; & multi-thread prog.
#1615.4124 MapReduce or Hadoop; distrib file syst; mach learn; nat lang process; ntwrk prog; large scale data process; data serialization; semantic web; HTML5 or Ajax; graph database; & C++, Java, Jscript, Go, & Python.
#1615.3734 interface design using Jscript, HTML 5, CSS, & Closure library; Java, C++, & sawzall; OO analysis & design; localization frmwrks; test driven dvlpmnt & unit test, using mock frmwrks,& dependency injection concepts; concurrent prog in multithread environ;& web apps security.
#1615.6520 Java or C++; info retrieval, data mine & mach learn; large scale distrib data process; dvlpmnt of data struct, algorithms & sw; & video del & video encode tech.
#1615.3853 design & implement large scale distrib sw syst; C, C++, Java, &/or Jscript; Linux &/or Unix; app security & authentication protocols; & large-scale prod sw syst troubleshoot.
#1615.4678 native app dvlpmnt on mobile syst; C++; mobile apps; & UI design & implement.
#1615.5639 C & C++; Python; script lang; Linux; syst security arch; multithread programming; distrib syst prog; TCP/IP & OSI ntwrkng stacks; remote procedure calls; storage syst; design & dvlpmnt of sw tests; & load & perf & funct testing.
#1615.3357 mach learn, data mine, & stats analysis; parallel & distrib computing; dvlpmnt of large scale sw syst; algorithm design & implement; & OOD & dvlpmnt.

Computer Professionals for NJ based IT Firm: Sr. S/W Engineers: Plan, dsgn, dvlp, test, enhance, customize & co-ordinate activities to implement adv s/w module components in complex comp environments using latest tools & technologies. Consult with users & management. Sr.Programmer Analysts: Plan, dsgn, dvlp, test, enhance, customize & co-ordinate activities to implement adv s/w module components in complex comp environments. Anlyz user needs & dvlp s/w solutions. Programmer Analysts-I: Dsgn, dvlp, test, create & modify comp applications s/w & specialized utility programs. Use OOP languages as well as C/S applications. Anlyz user needs & dvlp s/w solutions. Programmer Analysts - II: Dsgn, dvlp, test, create & modify comp applications s/w & specialized utility programs. Use OOP languages as well as C/S applications. Must be willing to travel & relocate for short periods of time as needed for all above positions. Apply w/2 copies of resume to HR, Nixsol, Inc. 53 Knightsbridge Road, Ste#216, Piscataway, NJ - 08854

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Business Systems Integrator (NY, NY) **#1615.3097** Design analytical solutions that answer complex business decisions. Exp incl: write unit, funct, & integration tests; 3 of the following: Python, Ruby, Java, Jscript, or Shell.
Technical Solutions Engineer (NY, NY) **#1615.6409**: Provide technical and product services to Google clients. Exp incl: Java, C++, &/or Python; & internet & ntwrk tech, incl HTML, XML/XSLT, Jscript, JSON, & HTTP.
Software Engineer Position (NY, NY) Design, develop, modify, and/or test software needed for various Google projects. Exp incl: **#1615.1159** C++; STL; Python; large-scale stat data analysis; time-series analysis; parallel computing & algorithms; & inter-process commun in distrib comp syst.

IT Company has multiple openings at various levels for Business Intelligence Analysts, F/T at its Glendale, CA office. Plan, develop, test & implement Business Intelligence program using Data Warehousing tools such as IBM-Netezza, Informatica, MicroStrategy and Oracle. Requires Bachelor's Degree + 5 yrs. progressive experience in job or related occupation or Master's Degree. May require travel to unanticipated locations throughout the US w/ expenses paid by employer. Mail Resume to: Systech Solutions Inc. Attn: HR, 700 No. Brand Blvd. Ste. 800 Glendale, CA 91203.

Interested candidates send resume to: Google Inc., PO Box 26184 San Francisco, CA 94126 attn: K Moultrie. Please reference job # below:
Web Developer (San Bruno, CA) **#1615.1633** Design, develop, modify, and/or test software needed for various Google projects. Exp incl: web tech, incl OO Jscript, HTML, & CSS; web standards; dvlpmnt in ActionScript 2/3; prog lang; & dvlpmnt for embed syst.
Software Engineer Positions (San Bruno, CA): Design, develop, modify, and/or test sw needed for various Google. projects. Exp incl:
#1615.5892 Python; web analytics; experimental design & analysis of complex data; Java or C++; & srvr side sw dvlpmnt.
#1615.4092 web tech; Java or Python; AJAX, XML/HTML, JSON, Jscript, & CSS; web templating engines; distrib mach comm; concurrent resource access; & load test, perf test, end-to-end test, & unit test.

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Software Engineer Positions (Kirkland, WA) Design, develop, modify, and/or test software needed for various Google projects. Exp incl:
#1615.6537 OOL; Jscript, HTML & CSS for app & UI dvlpmnt; dvlpmnt of APIs & end-user apps using both web & offline tech; data struct & algorithms; software design & dvlpmnt of large syst.
#1615.5747 OOL; syst admin in prod ntwrk environ utilizing UNIX oper syst; analysis & troubleshoot large-scale distrib syst; & IP ntwrkng, ntwrk analysis & perf, & app issues using standard tools.
#1615.4797 Perl; Java, C# or C++; OOP; AJAX; XML; HTML; CSS; Jscript; & web srvcs frmwrks & databases.
#1615.1918: Java, GWT, &/or C++; HTML &/or CSS; comp pltfrms & browsers; & design, implement, & test subsyst.

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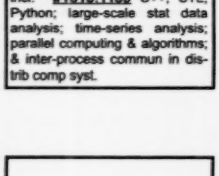

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Software Engineer Positions (NY, NY) Design, develop, modify, and/or test software needed for various Google projects. Exp incl:
#1615.1509 C++; Python; Bash; Linux; OOP; ntwrk; distrib syst; test method; release method; multi-thread prog; complex syst debug; & large scale data analysis.
#1615.5295 C, C++, & STL; mach learn; parallel & distrib compute; data struct; & algorithms.

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NC7069 - Software Test Specialist

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Software Engineer Position (Venice, CA) **#1615.1139** Design, develop, modify, and/or test software needed for various Google projects. Exp incl: client prod dvlpmnt; design & implement C++ modules in multi-thread apps; data struct, algorithms, & sw design; dvlpmnt of Windows apps using ATL, COM, Win32 API, GDI, Microsoft Networking, & Graphic technologies; dvlpmnt of web apps using Jscript, HTML, DOM, CSS, & XML.

SHARKTANK

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

HAL MAYFORTH

No Peeking!

This company is trying out remote control software for the help desk, so users and support techs can both see what's going on and reduce over-the-phone confusion. "The software would always prompt the customer beforehand with an 'OK' button for permission to establish the remote connection," says a help desk pilot fish. "In one test, the customer was to call the help desk with a problem while our observers monitored the exercise at the customer's workstation. Part of the help desk script was to warn customers that before they clicked 'OK,' they needed to hide any sensitive information on their displays so the help desk people would not see it – so the customer put his hand over the display and clicked 'OK.'"

At Least It Wasn't The Trash Folder

Outlook admin notices that several users seem to have emails stuck in their outboxes – hundreds of them in some cases. They're all old messages, so he starts to clear them out. Shortly thereafter, Sharky's pilot fish on the scene, who is responsible for backups and restores, gets a request to restore emails to a user's Outlook outbox. She's puzzled. Why would any user need anything restored to the outbox? Next day, fish gets another request to restore an outbox from a different user. This time fish asks, and gets an answer: Someone trained these users to store old emails in the outbox. Fish explains the right way to archive emails, restores the missing files, then asks the email admin if he knows anything about stuff going missing from outboxes. It doesn't take long to figure out what happened. The email admin stops deleting things from outboxes, and fish starts looking for who else needs an outbox restored. Grumbles fish, "I just wish I knew who that person was that thought it was a smart idea to save old emails in the outbox!"

Um, Thanks

User tells help desk pilot fish about a problem she's having with her email. Whenever she sends mail to a particular outside address, the mail bounces back. Fish logs through to the external email provider and sends the provider a full header log from one of the undeliverable emails, requesting investigation. Before long, fish receives this reply from the external provider's service desk: *From the error messages, it seems that the user has tried to send the email multiple times, which has most likely confused the network. The user will need to change her email settings accordingly so that there isn't too much traffic going through her IP address.* Reports fish: "The actual cause was later identified, which obviously was a great relief to the confused network."

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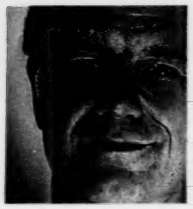

BART PERKINS

Can't Buy You Love

> There are problems with buying popularity on social media sites.

CAN YOU BUY POPULARITY? Some people seem to think so. Perceiving that organizations and people who have a lot of followers on social media tend to attract even more followers, they try to find ways to jump-start that virtuous circle. Sometimes they try to build their social media presence quickly by buying Facebook fans, YouTube views and other social media metrics. A quick Web search will uncover many examples of this type of love for sale. But there are problems with buying popularity. Here's a look at a few of them.

■ **You might be paying for bots.**
Many services sell robo-followers, not real people. Such accounts are easy to identify, because bot comments tend to be repetitions of a handful of generalized phrases that don't add to the conversation — and are often laced with misspellings and grammatical errors. Bot accounts either have no profile picture or a generic image, and no profile. Bot peddlers' websites also offer little if any information about the company or its management.

■ **Some sellers are scammers.**
Some sites don't even deliver bot followers. Worse, they might spam your real followers or try to hack them or target them in phishing expeditions. They get away with it because buyers — particularly corporate marketing personnel — rarely complain; who wants to admit to that they're engaging in such shady activity?

■ **Social sites analyze usage patterns.**
Social media companies are coy about their algorithms for detecting fake followers, but some patterns are clearly suspect. A YouTube video that goes from a handful of views to half a million in a few days could be exhibiting a legitimate viral explosion, but if few additional views occur over the next several months, then that surge was likely fake. And while your investment might have helped you pad your total number of followers, social media companies also measure engagement. Followers who don't interact with your content won't improve your Klout score.

■ **Cheaters could have their accounts deactivated.**
Most sites have serious prohibitions against actions designed to artificially increase views or followers. Initially, you might have a video deleted or get a warning from Facebook, but if problems persist, your account may be terminated.

■ **You could damage your reputation.**
Even if your account isn't terminated, if word gets out that you've been goosing your numbers, your real followers could get upset enough to drop you.

■ **Exposure is becoming more likely.**
The practice of boosting traffic with fake fans has become so prevalent that websites such as Socialbakers and StatusPeople make a business of identifying robo-followers. The list of parties whose subterfuge has been brought to light by these sites includes the U.S. State Department. I'm pretty sure that the other organizations, politicians, celebrities and government officials that have been exposed aren't too happy about it.

Real followers form a valuable community and deserve high-quality content. And in the long run, the quality of your content will determine the quantity of your followers. Remember, if customers discover that you've been paying for popularity, they may wonder what else you've been dishonest about. Do you really want to go there? ◆

Bart Perkins is managing partner at Louisville, Ky.-based Leverage Partners, which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.

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